Run on:

10/29/201

Q8gcy3 clostridium Q8325 clostridium Q9726 clostridium Q8py52 methanosarc Q8t239 methanopyru Q86513 clostridium Q9665 gallus gall Q9664 gallus gall Q97ka clostridium Q97ka clostridium Q97ka erreptococc Q8tww methanopyru Q964m8 streptococc Q8dcy streptococc Q9dcy gallus gall Q8icw plasmodium Q8yx86 anabaena sp

QBevil mycoplasma QB4041 liriodendro QB2567 leishmania QB1jk9 plasmodium QBewu3 mycoplasma QPphj3 xylella fas QPgnz4 leishmania QBcyp1 streptococc QBcyp1 streptococc QBa3k2 bacteroides

```
Loevgren A., Carlson C.R., Eskils K., Kolsto A.B.;
Localization of putative virulence genes on a physical map of the
Bacillus thuringiensis subsp. gelechiae chromosome.";
Curr. Microbiol. 37:245-250(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Loygren A.;
Submitted (JAN-1998) to the EMBL/GenBank/DDBJ databases.
EMBL; NIG268, CAA76148.1; -.
HSSP; P09598; LM47.
GO; GO:0004629; P:phospholipase C activity; IEA.
GO; GO:000270; P:zinc ion binding; IEA.
InterPro; IPR00894; PLC Nuclease.
InterPro; IPR00891; Zn dep PLPC;
Pfam; PF00882; Zn dep PLPC; I.
PRINTS; PR00479; PRPHPHLPASEC.
ProDom; PR001946; Zn dep PLPC; I.
PRODOM; PS001946; Zn dep PLPC; I.
PROSITE; PS001846; PROÑAR ZN DEPRND PLPC; I.
SEQUENCE 283 AA; 32387 MM; 4D72E6723F8A68FF CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bacillus thuringiensis.
Bacteria; Firmicutes; Bacillales; Bacillaceae; Bacillus.
NCBI_TaxID=1428;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Last sequence update)
Last annotation update)
pholipase C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           283 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       052864.
01-JUN-1598 (TEMBLRE). 06, Created)
01-JUN-1598 (TEMBLRE). 06, Last sequ
01-OCT-2003 (TEMBLRE). 25, Last anno
Phosphatidyl-degrading phospholipase
Q8GCY3
Q83Z25
Q87TE6
Q87TE7
Q87TE7
Q9DEG5
Q9DEG4
Q97RY6
Q97RY6
Q97RY6
Q9DEG4
Q9DEG4
Q9DEG4
Q9DEG4
Q9DEG4
Q9DEG7
Q9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                          1042
2402
245
245
2140
325
2144
                                                                                                                                                                                                     904
607
4144
625
470
956
                                                                                                                                                                                                                                                                                                   1818
570
477
1740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A. STRAIN=BL13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                       STRAIN=Bt13;
PubMed=9732531;
 230
219
166
146
117.5
111
111
109.5
108.5
107.5
                                                                                                                                                                                                     106.5
                                                                                                                                                                                                                                     102.5
102.5
102.5
102.5
101.5
100.5
100.5
                                                                                                                                                                                                                                                                                                                                                                                 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          052864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 1
052864
   Q81hw1 bacillus an Q81v27 bacillus an Q84fk1 bacillus ac Q84dk1 listeria mo Q84dk4 listeria mo Q84dk listeria mo Q84dk6 listeria mo Q84dk6 listeria mo Q84dk6 listeria mo Q84dk7 listeria iv Q48580 listeria iv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              052864 bacillus th
                                                                                                      July 27, 2004, 14:37:17; Search time 39 Seconds (without alignments) 2281.439 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Description
                                                                                                                                                                    PCT-US03-12556-2
1522
1 MKKKVLALAAMVALAAPVQS......BAQRVTAGYIHLWFDTYVNR
                                                                                                                                                                                                                                                                                                                    1017041
                5.1.6
Compugen Ltd.
                                                                                                                                                                                                                                                                                                                 Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                   1017041 segs, 315518202 residues
                GenCore version (c) 1993 - 2004
                                                                                                                                                                                                                                                                                                                                                                                                                                 summaries
                                                                           - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              052864
0811#N1
0811#N1
084DK1
084DK1
084DK4
084DK3
084DK5
084DK5
084DK5
084DK5
084DK5
084DK5
084DK5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sp_plant:*
sp_rodent:*
sp_virus:*
sp_vertebrate:*
sp_unclassified:*
                                                                                                                                                                                                                                     BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           pp_fungi:*
sp_human:*
sp_invertebrate:*
sp_mammal:*
sp_mhc:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sp_rvirus:*
sp_bacteriap:*
sp_archeap:*
                                                                                                                                                                                                                                                                                                                                                                                              Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 su
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sp_organelle:*
sp_phage:*
                                                                                                                                                                                                                                                                                                                                                  seq length: 0
seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sp_archea:*
sp_bacteria:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query
Match Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                             SPIREMBL 25:*
                             Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              29.4
29.0
29.0
28.3
28.7
27.0
27.0
23.5
20.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1257.5
1257.5
1251.5
1250.5
482.5
448
                                                                                                                                                                                                                                     Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       411
357.5
325
314.5
                                                                                                                                                                                       Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           442
440
437
                                                                           OM protein
                                                                                                                                                                                                                                                                                                                                                  Minimum DB
Maximum DB
                                                                                                                                                                                                         Sequence:
                                                                                                                                                                                                                                                                                     Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Database
```

Score 1257.5; DB 2; Length 283; Pred. No. 3.6e-90;

82.6%; 80.2%;

Query Match Best Local Similarity

Q8VMY6 Q48580

о В

Result

```
121 AKQAKETGAKYFKLAGESYKUKDMKQAPFYLGLSLHYLGDVNQPMHAANFTNLSYPQGFH 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Read T.D., Peterson S.N., Toursase N., Baillie L.W., Paulsen I.T., Nelson K.E., Tettelin H., Fouts D.E., Eisen J.A., Gill S.R., Inlotangpie S.K., Okstead O.A., Helgason E., Rilstone J., Wu M., Kolonay J.F., Beanan M.J., Dodeon R.J., Brinkac L.M., Gwinn M., DeBoy R.T., Madpu R., Daugherty S.C., Durkin A.S., Haft D.H., Nelson W.C., Peterson J.D., Pop M., Khouri H.M., Radune D., Benton J.L., Mahamoud Y., Jiang L., Hance I.R., Weidman J.F., Berry K.J., Plaut R.D., Wolf A.M., Watkins K.L., Nierman W.C., Thomason B., Friedlander A.M., Koehler T.M., Hanna P.C., Kolsto A.-B., Fraser C.M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              120 AKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFTNLSYPMGFH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SKYENFVDTIKNNYIVSDSNGYMNWKGANPEDWIEGAAVAAKODYPGVVNDTIKDWFVKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DIMSRNTTIVNPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYDPDTGTTYIPF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MKKKVLALAAMVALAAPVQSVVFAQTNNSESPAPIL-RWSAEDKHNEGINSHLWIVNRAI
                                                             180 SKYENPVDIIKNNYIVSDSNGYMNWKGANPEDWIEGAAVAAKQDYPGVVNDIIKDWFVKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "The genome sequence of Bacillus anthracis Ames and comparison closely related bacteria.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 16; Length 283;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   32; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PLC OR BA0677.
Bacillus anthracis (strain Ames).
Bacteria, Firmicutes; Bacillales; Bacillaceae; Bacillus.
NCBI_TaxID=198094;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       283 AA; 32384 MW; 60C7296E55D468A7 CRC64;
                                                                                                                                                                                                                      240 AVSQEYADKWRAEVTPVTGKRLMEAQRVTAGYIHLWFDTYVNR
                                                                                                                                                                                                                                                                                                                                                                                                                                             01-JUN-2003 (TrEMBLrel. 24, Created)
01-JUN-2003 (TrEMBLrel. 24, Last sequence update)
01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
Phospholipsse C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TIGR; BA0677; -.

GO; GO:0004629; P:phospholipase C activity; IEA.

GO; GO:0008270; F:zinc ion binding; IEA.

InterPro; IPR008947; PLC Nuclease.

InterPro; IPR001531; Zn dep PLPC.

PRAM; PF00862; Zn dep PLPC.

PRINTS; PR00479; PRPHHHLPASEC.

PRODM; PD003946; Zn dep PLPC; 1.

PROSITE; PS00384; PROKAR_ZN_DEPRO_PLPC; 1.

COMPLEE PROCEOME.

SEQUENCE 283 AA; 32384 MW; 60C7296E55D46BA7 CRC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     82.2%; Score 1251.5; DB 80.2%; Pred. No. 1.1e-89; iive 23; Mismatches 32
                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
MEDLINE=22608414; PubMed=12721629;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Nature 423:81-86(2003).
EMBL; AE017026; AAP24690.1; -.
TIGR; BA0677; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity 80.24 Matches 227; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                Q81V27
                                                                                                                                                                                                                                                                                                                                            RESULT 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                 DDT TO DD T THE LAND 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                       ठे
                                                                                                                        용
                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQFWHAANFTNLSYPWGFH 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DIMSRNTTIVNPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYDPDTGTTYIPF 119
                                                                                                                                                                                                                                                                                                                                                            239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DIMSRNTTIVNPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYDPDTGTTYIPF 119
                                                                                                                                                                                                                                                                                                                     AKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPWHAANFTNLSYPMGFH 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=22608415; PubMed=12721630;
A KEDLINE=22608415; PubMed=12721630;
A Kapetral V., Bhattacharya A., Racank G., Mikhailova N., Lapidus A.,
A Kapetral V., Bhattacharya A., Reznik G., Mikhailova N., Lapidus A.,
Chu L., Mazur M., Goltsman E., Larsen N., D'Souza M., Walunas T.,
A Grechkin Y., Pusch G., Haselkorn R., Ponstein M., Ehrlich S.D.,
Overbeek R., Kyrpides N.;
Genome sequence of Bacillus cereus and comparative analysis with
IT Bacillus anthracis.";
Bacillus anthracis.";
Nature 423:87-91(2003).
REMBL; AE017000; AAP07684.1; -.
REMBL; AE017000; AAP07684.1; -.
REMBL; AE017000; Princion binding; IEA.
RO; Go:0016781; F:hydospholipase C activity; IEA.
RO; Go:0016781; F:hydospholipase C activity; IEA.
RO; Go:0016841; PLC inclion binding; IEA.
RITHEFPC; IPR001531; Zn dep_PLPC.
R Ffam; PP00882; Zn dep_PLPC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MKKKVLALAAMVALAAPVQSVVFAQTNNSESPAPIL-RWSAEDKHNEGINSHLWIVNRAI
                                                                                                                  1 MKKKVLALAAAAITLVAPLQSVAFAHENDGGQRFGVIPRWSAEDKHKEGVNSHLWIVNRAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                    SKYENFVDTIKNNYIVSDSNGYWNWKGANPEDWIEGAAVAAKQDYPGVVNDTIKDWFVKA
                                                                       MKKKVLALAAMVALAAPVQSVVFAQTNNSESPAPIL-RWSAEDKHNEGINSHLWIVNRAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Match
Local Similarity 80.2%; Score 1257.5; DB 16; Length 283;
Local Similarity 80.2%; Pred. No. 3.6e-90;
Les 227; Conservative 23; Mismatches 32; Indels 1;
                1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         32, Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bacillus cereus (strain ATCC 14579 / DSM 31).
Bacteria, Firmicutes; Bacillales; Bacillaceae; Bacillus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Complete proteome.
283 AA; 32387 MW; 4D72E6723F8A68FF CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-JUN-2003 (TrEMBLrel. 24, Created)
01-JUN-2003 (TrEMBLrel. 24, Last sequence update)
01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
Phospholpse C (EC 3.1.4.3).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Probom; PD003946; Zn. dep PLPC; 1.
PROSITE; PS00384; PROKAR_ZN_DEPEND_PLPC; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       283 AA
                23; Mismatches
                   227; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              283 AA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=226900;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Hydrolase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      120
                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                               120
                                                                                                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SECUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QBIHWI
                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 2
Q81HW1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SO OR REPLETED OR SERVICE OF SERV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                  셤
                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                        ઠે
```

ဌ

179

119 120

9

239 180

```
Schmid M., Walcher M., Bubert A., Wagner M., Wagner M., Schleifer K.-H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     242 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                253 GLSDSQKDRTWKKAVRAATGKRL 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               239 AAVSQEYADKWRAEVTPVTGKRL 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
   MEDLINE=22535694; PubMed=12648840;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN=IMVW 1630;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=1639;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     083TL2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DIMSRNTTIVNPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYDPDTGTTYIPF 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFTNLSYPMGFH 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SKYENFVDTIKNNYIVSDSNGYWNWKGANPEDWIEGAAVAAKQDYPGVVNDTTKDWFVKA 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AKQAKETGAKYFKLAGESYKNKDMKQAFFYLGLSLHYLGDVNQPMHAANFTNLSYPQGFH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 2; Length 283;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Promeranteev A.P., Kalnin K.V., Leppla S.H.;

"Bacillus cereus pc-plc and sph genes.";

"Bacillus cereus pc-plc and sph genes.";

"Submitted (FEB-2003) to the EMBL/GenBank/DDBJ databases.

EMBL, AY195600; AA040751.1;

"GO; GO:0008270; F:phospholipase C activity; IEA.

"GO; GO:0008270; F:zinc ion binding; IEA.

"InterPro; IPR001931; Zn dep PLPC.

"Pfam; PF00882; Zn dep PLPC; 1.

"PRINTS; PR00479; PRPHFHLPASEC.

"ProDom; PD003946; Zn dep PLPC; 1.

"PROSITE; PS00384; PROKAR ZN DEPBRD PLPC; 1.

"PROSITE; PS00384; PROKAR ZN DEPBRD PLPC; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 82.2%; Score 1250.5; DB 2; Length Best Local Similarity 79.9%; Pred. No. 1.3e-89; Matches 226; Conservative 24; Mismatches 32; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Listeria seeligeri.
Bacteria, Firmicutes, Bacillales, Listeriaceae, Listeria.
NCBI_TaxID=1640;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bacillus cereus.
Bacteria; Firmicutes; Bacillales; Bacillaceae; Bacillus.
NCBI_TaxID=1396;
240 AVSQEYADKWRAEVTPVTGKRLMEAQRVTAGYIHLWFDTYVNR 282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     240 AVSQEYADKWRAEVTPVTGKRLMEAQRVTAGYIHLWFDTYVNR 282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        241 AVSQEYADKWRAEVTPWTGKRLMDAQRVTAGYIQLWFDTYGDR
                                                                                                                                                                                                                                                                                      01-JUN-2003 (TrEMBLrel. 24, Created)
01-JUN-2003 (TrEMBLrel. 24, Last sequence update)
01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
Phosphatidylcholine-specific phospholipase C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Last sequence update)
Last annotation update)
                                                                                                                                                                                                                               283 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Created)
                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   084DK1;
01-JUN-2003 (TrEMBLrel. 24,
01-JUN-2003 (TrEMBLrel. 24,
01-OCT-2003 (TrEMBLrel. 25,
Phospholipase (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           [1]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                           Q84F16
Q84F16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q84DK1
                                                                                                                                                   RESULT 4
084F16
1004616
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701-0
100701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 5
084DK1
1D 084DD
AC 084DD
DT 01-JD
DT 01-JD
DT 01-DD
DT 01-DD
DT 01-DD
DT 01-DD
DC 01
```

8

ò

g

ઠે

ద ò

ò

```
60 DIMSRNTTIVNPNETALLLNEWRADLENGIYSADYENPYYDNSTYASHFYDPDTGTTYIPF 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      180 SKYENFVDTIKNNYIVS-DSNGYWNWKGANPEDWIEGAAVAAKQDYPGVVNDTIKDWFVK 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14 ASIVALSGADEASACGDESVKDQIAPHDIQNKLPSKLGWSAEHPSKNEINTHLWLFNQAE 73
"Mucleic acid-based, cultivation-independent detection of Listeria spin and genetypes of L. monocytogenes.";

"FEMS immunol. Med. Microbiol. 35:215-225(2003).

EMBL; AYISO839; AAO19486.1; -.

R GO; GO:0004629; F:phospholipase C activity; IEA.

GO; GO:0004629; F:phospholipase C activity; IEA.

R FROM:PROM:PROM:PREPHIABESC.

R PROM:PROM:PREPHIABESC.

R PROM:PREPHIABESC.

R PROM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      120 AKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFTNLSYPMGFH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9 AAMVALAAPVQSVVFAQTNNSESPAP-----ILRWSAEDKHNEGINSHLWIVNRAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         "Nucleic acid-based, cultivation-independent detection of Listeria app. and genotypes of L. monocytogenes.";
FEMS. ANTIONS. M. Microbiol. 35:215-225(2003).

EMBL, ANTIONS. AAO19477.1; -.

EMBL, ANTIONS. AAO19487.1; -.

GO; GO:0004629; F:phospholipase C activity; IEA.

GO; GO:0004629; F:phospholipase C activity; IEA.

InterPro; IPR001831; Zn dep_PLPC.

InterPro; IPR001831; Zn dep_PLPC.

PRINTS; PR00479; PRPHFHHASEC.

Probom; PD003946; Zn_dep_PLPC; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               / Match 31.7%; Score 482.5; DB 2; Length 275; Local Similarity 36.9%; Pred. No. 1e-29; ne 97; Conservative 54; Mismatches 101; Indels 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Listeria monocytogenes.
Bacteria; Firmicutes; Bacillales; Listeriaceae; Listeria.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE=22535694; PubMed=12648840;
Schmid M., Walcher M., Bubert A., Wagner M., Wagner M.,
Schleifer K.-H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-JUN-2003 (TrEMBLrel. 24, Created)
01-JUN-2003 (TrEMBLrel. 24, Last sequence update)
01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
Phospholipase (Fragment).
```

윱 ઠ 윉 ઠ g ઠે 유

```
MEDLINE-22535694; PubMed=12648840; Schnid M., Walcher M., Bubert A., Wagner M., Wagner M., Schleifer K.-H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE 242 AA; 27890 MW; 7F3DEFD2AB43B372 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                        Last sequence update)
Last annotation update)
                                                                                                                                                                                                                             242 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                             Created)
                                                                                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-JUN-2003 (TrEMBLrel. 24, 01-JUN-2003 (TrEMBLrel. 24, 01-OCT-2003 (TrEMBLrel. 25,
                                                                                                                                                                                                                                                                                   01-JUN-2003 (TrEMBLrel. 24, 01-JUN-2003 (TrEMBLrel. 24, 01-OCT-2003 (TrEMBLrel. 25,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Phospholipase (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                           Phospholipase (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRELIMINARY;
                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      230 NAKRAKRDYP 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      216 AAVAAKODYP 225
216 AAVAAKQDYP 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Listeria monocytogenes
                                                               230 NAKRAKRDÝP 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        [1]
SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=1639;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=1639;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q84DK0
Q84DK0;
                                                                                                                                                                                                                             083053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOUR BRIEF REAL SOUR BETT TO THE SOUR BE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                96 PYYDNSTYASHFYDPDTGTTYIPFAKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLH 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PDTGTTYIPFAKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANF 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                36 LRWSAEDKHNEGINSHLWIVNRAIDIMSRNTTIVNPNETALLNEWRADLENGIYSADYEN 95
                                                                                                                                                                                                                                                                                                                                                                                           50 SHLWIVNRAIDIMSRNTIIVNPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYD 109
                                                                                                                                                                                                                                                                                                                                                                                                                                2 KKKVIALAAMVA-LAAPVQSVV-----PAQT----NNSESPAP-ILRWSAEDKHNEGIN 49
                                                                                                                                                                                                                                                                                                       170 INLSYPMGFHSKYENFVDTIKNNYIVSDSNGYWNWKGANPEDWIEGAAVAAKQDYP 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "Nuclear acid-lased, cultivation-independent detection of Listeria spp. and genotypes of L. monocytogenes."; PEMS Immunol. Med. Microbiol. 35:215-225(2003).

EMBL; Ariso836, AAO19483.1; -
GO; GO:0004629; P:phospholipase C activity; IEA.

GO; GO:0008270; F:phospholipase C activity; IEA.

InterPro; IPR008947; PLC Nuclease.

InterPro; IPR001531; Zn dep_PLPC.

Pfam; PF00882; Zn dep_PLPC.

Pfam; PF00892; Zn dep_PLPC; I.

PRINTS; PR00479; PRPHFLPASEC.
                                                                                                                                                                                                         12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
29.0%; Score 442; DB 2; Length 242;
Best Local Similarity 42.6%; Pred. No. 1.3e-26;
Matches 81; Conservative 38; Mismatches 71; Indels
                                                                                                                               ch
1 Similarity 39.4%; Score 448; DB 2; Length 242;
93; Conservative 45; Mismatches 86; Indels 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Listeria monocytogenes.
Bacteria, Firmicutes, Bacillales, Listeriaceae, Listeria.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
MEDINE=22535694; PubMed=12648840;
Schmid M., Walcher M., Bubert A., Wagner M., Schleifer K.-H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              242 AA; 27892 MW; 91D9A192EBE4DE18 CRC64;
                                                                      242 AA; 27963 MW; CA45226804B99E87 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-JUN-2003 (TrEMBLrel. 24, Created) 01-JUN-2003 (TrEMBLrel. 24, Last sequence update) 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Probom; PD003946; Zn_dep_PLPC; 1.
PROSITE; PS00384; PROKAR_ZN_DEPEND_PLPC; 1.
NOW IER.
24.2. 24.2. 24.2.
SEQÜENCE 24.2.AA; 27892 MW; 91D9A192EBE4;
             PROSITE, PS00384; PROKAR ZN DEPEND PLPC; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Phospholipase (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=1639,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             084DK4;
01-JUN-2003 (
01-JUN-2003 (
                                                  NON TER
SEQUENCE
                                                                                                                                                   Query Match
                                                                                                                                                                                        Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q84DK4
                                                                                                                                                                                        Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 7
(284 D)
(384 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
```

```
156 YLGDVNOPMHAANFINLSYPMGFHSKYENFVDTIKNNYIVSDSNGYWNWKGANPEDWIEG 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                96 PYYDNSTYASHFYDPDTGTTYIPPAKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLH 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  36 LRWSAEDKHNEGINSHLWIVNRAIDIMSRNTTIVNPNETALLNEWRADLENGIYSADYEN 95
                                                                                                                                                                                                                                   **Substitute A: Design and genotypes of L. monocytogenes.";

Thycleic acid-based, cultivation-independent detection of Listeria spp. and genotypes of L. monocytogenes.";

ERMS immunol. Med. Microbiol. 35:215-225(2003).

ERMSL; AXI50833; AAO19480.1; -...

R RMSL; AXI50834; AAO19481.1; -...

GO; GO:0004629; F:phospholipase C activity; IEA.

GO; GO:0004629; F:phospholipase C activity; IEA.

R GO; GO:0004570; F:zinc ion binding; IEA.

InterPro; IPR001531; Zn.dep_PLPC.

R PROMIS; RR00479; PREHPHURSSC.

R PRODOM; PD003946; Zn. dep_PLPC; 1.

R PROSITE; PS00134; PROXAR_ZN_DEPEND_PLPC; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
29.0%; Score 442; DB 2; Length 242;
Best Local Similarity 42.6%; Pred. No. 1.36-26;
Matches 81; Conservative 38; Mismatches 71; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Firmicutes; Bacillales, Listeriaceae; Listeria.
Listeria monocytogenes.
Bacteria; Firmicutes; Bacillales; Listeriaceae; Listeria.
```

```
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
       38;
       80; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 216 AAVAAKQDYP 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ||:|||
230 NAKRAKRDYP 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    216 AAVAAKQDYP 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NON TER
SEQUENCE
                                                                                                                                                                                                        96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q84DK3
ID Q84DK3
DT Q84DK3
DT Q1-JUN;
DT Q1-JUN;
DE PLOSD,
GN PLCB.
GN PLCB
       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 12
                                                                          ò
                                                                                                                       g
                                                                                                                                                                                                 à
                                                                                                                                                                                                                                                                    원
                                                                                                                                                                                                                                                                                                                                           ઠે
                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              . ⋩
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             50 LSWSADNPINTDVNIHYWLFKQAEKILAKDVDHMRANLMNELKNFDKQIAQGIYDADHKN 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PYYDNSTYASHFYDPDTGTTYIPFAKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLH 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           110 PYYDTSTFLSHFYNPDKDNTYLPGFANAKITGAKYFNQSVADYREGKFDTAFYKLGLAIH 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              156 YLGDVNQPMHAANFTNLSYPMGFHSKYENFVDTIKNNYIVSDSNGYWNWKGANPEDWIEG 215
                                                           Schleifer K.-H.;

Thus, and genotypes of L. monocytogenes.";

Thus, and genotypes of L. monocytogenes.";

REMS. Immunol. Med. Microbiol. 35:215-225(203).

REMSL, AY150841; AA019488.1;

RO; GO:0004629; F:phospholipase C activity; IEA.

GO; GO:0004270; F:phospholipase C activity; IEA.

RO; GO:0008270; F:nc ion binding; IEA.

InterPro; IPR008947; PLC Nuclease.

InterPro; IPR008947; PLC Nuclease.

Remi, Pr00882; Zn dep PLPC.

Remi, Pr00882; Zn dep PLPC.

RINTS; PR00479; PRPHFPLPASEC.

REMONTS; PR00479; PRPHFPLPASEC.

REMONTS PR00479; PRPHFPLPASEC.

REMONTS PR00479; PRPHFPLPASEC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      36 LRWSAEDKHNEGINSHLWIVNRAIDIMSRNTTIVNPNETALLNEWRADLENGIYSADYEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "Nucleic acid-based, cultivation-independent detection of Listeria app. and genotypes of L. monocytogenes.";

PEMS. Microbiol. Mcd. Microbiol. 35:215-225(2003).

EMBL, AVI50835; AAO19482.1; -...

GO; GO:0004629; F:phospholipase C activity; IEA.

GO; GO:0004629; F:phospholipase C activity; IEA.

InterPro; IPR008370; F:rainc ion binding; IEA.

InterPro; IPR008347; PLC Nuclease.

InterPro; IPR001831; Zn. dep. PLPC.

PEMS. PR00479; PRPHFHLPASEC.

PRODM; PR00479; PRPHFHLPASEC.

PRODM; P0003944; PROKAR_ZN_DEPEND_PLPC; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 242;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 242;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 28.9%; Score 440; DB 2; Length 24 Best Local Similarity 42.6%; Pred. No. 1.8e-26; Matches 81; Conservative 37; Mismatches 72; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bacteria; Firmicutes; Bacillales; Listeriaceae; Listeria.
NCBL_TaxID=1639;
MEDLINE=225335694; PubMed=12648840;
Schmid M., Walcher M., Bubert A., Wagner M., Wagner M.,
Schleifer K.-H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
MEDLINE=22535694; PubMed=12648840;
Schmid M., Walcher M., Bubert A., Wagner M., Wagner M.,
Schleifer K.-H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NON TER 242 242 - SEQUENCE 242 AA; 27947 MW; C9BAD440B74F98C9 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         27888 MW; 15E72FC86B4ECF47 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28.7%; Score 437; DB 2; 42.1%; Pred. No. 3.1e-26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             242 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-JUN-2003 (TrEMBLrel. 24, 01-JUN-2003 (TrEMBLrel. 24, 01-OCT-2003 (TrEMBLrel. 25,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Phospholipase (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    216 AAVAAKODYP 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    230 NÁKRÁKRDÝP 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Listeria monocytogenes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            242 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NON TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 10
084DKS
AC 084DKS
AC 084DKS
DT 01-JU
DT 01-JU
DT 01-CC
DE Phosp
GN Liste
OC Bacte
OC
       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
```

The Party

```
ö
                                                                                PYYDNSTYASHFYDPDTGTTYIPFAKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLH 155
                                                                                                                                                                                 156 YLGDVNQPMHAANFTNLSYPMGPHSKYENFVDTIKNNYIVSDSNGYWNWKGANPEDWIEG 215
                                                                                                                                                                                                                                                                                          50 LSWSADNPITNIDVNIHYWLFKQAEKILAKDVDHMRANLMNELKNFDKQIAQGIYDADHKN 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PYYDNSTYASHFYDPDTGTTYIPPAKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLH 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       156 YLGDVNQPMHAANFTNLSYPMGFHSKYENFVDTIKNNYIVSDSNGYWNWKGANPEDWIEG 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             36 LRWSAEDKHNEGINSHLWIVNRAIDIMSRNTTIVNPNETALLNEWRADLENGIYSADYEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               36 LRWSAEDKHNEGINSHLWIVNRAIDIMSRNTTIVNPNETALLNEWRADLENGIYSADYEN
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sonlearer A. Th.;

"Nucleic acid-based, cultivation-independent detection of Listeria app. and genotypes of L. monocytogenes.";

FEMS. Simunol. Med. Microbiol. 35:215-225(2003).

EMBL. AT50837; AA019484.1; -.

GO; GO:0004629; F:phospholipase C activity; IEA.

GO; GO:0004629; F:phospholipase C activity; IEA.

InterPro; IPR001837; Z. Adop Dinding; IEA.

Prom: PR001837; Z. Adop PLPC.

PRINTS; PR00479; PRPHFHLPASEC.

PRODOM; PD003946; Z. Adop PLPC; 1.

PROSITE; PS00384; PROKAR_ZN_DEPEND_PLC; 1.
ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Listeria monocytogenes.
Bacteria; Firmicutes; Bacillales; Listeriaceae; Listeria.
NCBI_TaxID=1639;
72; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          71; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   [1]
SEQUENCE FROM N.A.
MEDILINE=22535694; PubMed=12648840;
Schmid M., Walcher M., Bubert A., Wagner M., Schleifer K.-H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    242 AA; 27865 MW; 7F3DEFD2B1FEDE12 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-JUN-2003 (TrEMBLrel. 24, Created)
01-JUN-2003 (TrEMBLrel. 24, Last sequence update)
01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
Phospholipase (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Match 28.7%; Score 437; DB 2; Local Similarity 42.1%; Pred. No. 3.1e-26; Les 80; Conservative 39; Mismatches 71;
```

9

pct-us03-12556-2.rspt

```
3est_Local Similarity 41.1*
4atches 78; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           216 AAVAAKQDYP 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ||:|||
230 NAKRAKRDYP 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NON TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Q84DK7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q84DK7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q84DK7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCOOR SELECTION OF SELECTION O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ||| || ||: || ||: || ||: || || || ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: ||: 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                96 PYYDNSTYASHFYDPDTGTTYIPFAKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLH 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=22535694; PubMed=12648840; A Schmid M., Walcher M., Magner M., Muchaic acid-based, cultivation-independent detection of Listeria app. and genotypes of L. monocytogenes."; PEMS Immunol. Med. Microbiol. 35:215-225(2003).

Remail, AYL50832; AAO19479.1, -.. GO, GO:000820; P:phospholipase C activity; IEA.

GO; GO:000820; P:phospholipase C activity; IEA.

RO; GO:0008270; P:phospholipase C activity; IEA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 36 LRWSAEDKHNEGINSHLWIVNRAIDIMSRNTTIVNPNETALLNEWRADLENGIYSADYEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE-25

MEDLINE-2555694; PubMed=12648840;

Schmid M., Walcher M., Bubert A., Wagner M., Wagner M.,

Schleifer K.-H.;

"Nucleic acid-based, cultivation-independent detection of Listeria

spp. and genetypes of L. monocytogenes.";

FEMS Immunol. Med. Microbiol. 35:215-225(2003).

EMBL, AX150838; AAO19485.1; -.

GO; GO:0004629; F:phospholipase C activity; IEA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
27.0%; Score 411; DB 2; Length 236;
Best Local Similarity 42.1%; Pred. No. 3.3e-24;
Matches 80; Conservative 36; Mismatches 68; Indels
                                                                                                                                                                                                                                                                                                                                                                               Listeria monocytogenes.
Bacteria, Firmicutes, Bacillales, Listeriaceae, Listeria.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Listeria monocytogenes.
Bacteria, Firmicutes, Bacillales, Listeriaceae, Listeria.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               236 AA; 27083 MW; 4D6DC682E542897B CRC64;
                                                                                                                                                                                            Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     242 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Created)
                                                                                                                                                     Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                      PRT;
                                       Q84DX6
Q84DX6,
Q84DX6,
Q1-JUN-2003 (TrEMBLrel. 24, C
Q1-JUN-2003 (TrEMBLrel. 24, L
Q1-OCT-2003 (TrEMBLrel. 25, L
Phospholipase (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-JUN-2003 (TrEMBLrel. 24, 01-JUN-2003 (TrEMBLrel. 24, 01-OCT-2003 (TrEMBLrel. 25, Phospholipase (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             216 AAVAAKQDYP 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       224 NAKRAKADYP 233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=1639;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=1639;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-JUN-2003 (01-JUN-2003 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q84DX2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REGULT 13
1084DK2
AC Q84DK
AC Q84DK
DT 01-JU
DT 01-JCB
DE Phosp
GN Listee
OC Bacte
OC Bacte
OC RECTE
OX (NCI
RN (NCI
RN SEQUE
RX SCHMI
RA 
셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          È
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
```

```
50 LSWSADNPTNITDVNITHYWLFKQAEKILAKDVNHMRANLMNELKKFDKQIAQGIYDADHKN 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               96 PYYDNSTYASHFYDPDIGTTYIPFAKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLH 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           156 YLGDVNQPMHAANFTNLSYPWGFHSKYENFVDTIKNNYIVSDSNGYWNWKGANPEDWIEG 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               50 SHLWIVNRAIDIMSRNTTIVNPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYD 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAIN=NCTC 5105;

MEDIJUR=22535694; PubMed=12648840;

A REDLINE=22535694; PubMed=12648840;

A Schnid M., Walcher M., Bubert A., Wagner M., Magner M.,

Schleifer K.-H.;

"Nucleic acid-based, cultivation-independent detection of Listeria T spp. and genotypes of L. monocytogenes.";

FEMS Immunol. Med. Microbiol. 35:215-225(2003).

R RGD: AY150811; AA019478.1;

R GO; GO:0004629; F:phospholipase C activity; IEA.

R GO; GO:0008270; F:zinc ion binding; IEA.

R GO; GO:0008270; F:zinc ion binding; IEA.

R InterPro; IPR008347; PLC Nuclease.

R InterPro; IPR00835; Zn dep PLPC.

R Pfam; PR00882; Zn dep PLPC.

R PRINTS; PR00479; PRPHPHLPASEC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           36 LRWSAEDKHNEGINSHLWIVNRAIDIMSRNTTIVNPNETALLNEWRADLENGIYSADYEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 KKKVLALAAMVA-LAAPVQSVV-----FAQT----NNSESPAP-ILRWSAEDKHNEGIN
                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match 23.5%; Score 357.5; DB 2; Length 223; Best Local Similarity 33.9%; Pred. No. 4.5e-20; Matches 80; Conservative 42; Mismatches 83; Indels 31;
                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                          27.0%; Score 411; DB 2; Length 242; 41.1%; Pred. No. 3.4e-24; tive 35; Mismatches 77; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Listeria monocytogenes.
Bacteria, Firmicutes, Bacillales, Listeriaceae, Listeria.
NCBL_TaxID=1639;
GO; GO:0008270; F:zinc ion binding; IEA.
InterPro; IPR068947; PLC Nuclease.
InterPro; IPR068947; PLC Nuclease.
InterPro; IPR06894; Zn dep_PLPC.
PRINTS; PR00479; PRPHPHLPASEC.
PRODOM; PD003946; Zn dep_PLPC; 1.
PRINT EX 242 242
SEQÜENCE 242 AA; 27840 MW; C916EE4DAAE7IE8F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               223 AA; 25700 MW; AAD07392ACA37593 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-JUN-2003 (TrEMBLrel. 24, Created)
01-JUN-2003 (TrEMBLrel. 24, Last sequence update)
01-JUN-2003 (TrEMBLrel. 25, Last annotation update)
Phospholipase (Pragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProDom; PD003946; Zn dep_PLPC; 1.
```

```
110 PDTGTTYIPFAKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANF 169
                                                     122 HAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFTNLSYPMGFHSK 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1 NAKQTCGKYFKQALQDYKEDKLNTAFYKLGLSIHYFTDCSQPMHANNFTAVSNPIGFHSA 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.

SIZIURNEE FROM N.A.

STRAIN=ATCC 19119;

NIGHT ST. Goodel W.;

The evolution of virulence determinants in the Listeria genus.";

Submitted (SEP-1999) to the EMBL/GenBank/DDBJ databases.

EMBL; AJ249805; CAC80657.1;

R GO: GO:00046787; F:hydrolase activity; IEA.

R GO: GO:0004629; F:phospholipase C activity; IEA.

R GO: GO:0008270; F:phospholipase C activity; IEA.

R InterPro; IPRO08947; PLC Nuclease.

R InterPro; IPRO08941; Zn dep PLPC.

R PRINTS; PRO0479; PRPHPILPASEC.

R PRINTS; PRO0479; PRPHPILPASEC.

R Hydrolase.
                                                                                                                                                               170 TNLSYPMGFHSKYENFVDTIKNNYIVSDSNGYWNWKGANPEDWIEGAAVAAKQDYP 225
                                                                                                                                                                                                                    6; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 21.4%; Score 325; DB 2; Length 154; Best Local Similarity 41.3%; Pred. No. 9.5e-18; Matches 64; Conservative 29; Mismatches 56; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Listeria ivanovii.
Bacteria; Firmicutes; Bacillales; Listeriaceae; Listeria.
NCBI_TaxID=1638;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NÓN_TER 1 1
SEQÜENCE 154 AA; 17887 MW; FB12EE594D33E39A CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q8VMY6;
01.MAR-2002 (TrEMBLrel. 20, Created)
01-WAR-2002 (TrEMBLrel. 20, Last sequence update)
01-WCT-2003 (TrEMBLrel. 25, Last annotation update)
Phospholipase C (EC 3.1.4.3) (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q8VMY6
                                                                                                                                                                                                                                                                                                                                                                           RESULT 15
080WYG
080WYG
DD 01-MA
DT 01-MA
DT 01-MA
DT 01-MCB
DE PLOSP
GN Liste
CO Bacte
CO Ba
                                                                                                                                                                                                                                               .
20
                                                                               a
                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
```

242 SOEYADKWRAEVTPVTGKRLMEAQRVTAGYIHLWF 276

182 YENFVDTIKNNYIVSDSNGYWNWKGANPEDWIEGAAVAAKQDYPGVVNDTTKDWFVKAAV 241

8 8 8

Search completed: July 27, 2004, 14:47:21 Job time : 41 secs Chest Middle Scots Middle Mid

```
July 27, 2004, 14:32:07; Search time 13 Seconds (without alignments) 1129.522 Million cell updates/sec
GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd.
                                                                                               OM protein - protein search, using sw model
                                                                                                                                              Run on:
```

PCT-US03-12556-2 1522 1 MKKKVLALAAMVALAAPVQS.........EAQRVTAGYIHLWFDTYVNR 282 Title: Perfect score: Sequence:

BLOSUM62 Gapop 10.0 , Gapext 0.5 Scoring table:

141681 seqs, 52070155 residues Searched:

141681 Total number of hits satisfying chosen parameters:

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries Minimum DB seq length: 0 Maximum DB seq length: 2000000000

SwissProt_42:* Database : Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

	Description									-					_	Q12451 saccharomyc	-									Q9pral ureaplasma			-		P53663 mycoplasma		P03513 bunyavirus	P57092 paenibacill
SUMMAKIES	οι		PHLC_BACCE	PHLC_LISMO	PHLC_CLOBI	PHLC_CLOSO	PLC2_CLOPE	PLC1_CLOPE	PHLC_CLOHA	PHLC_CLONO	EXG2_YEAST	MOKD_SCHPO	OMPF_SALTI	OMPF_SALTY	YBFM_ECOLI	OSH2_YEAST	YE70 METJA	HLT VIBPA	EXAA_PSEAE	XXNZ_CLOTM	FMF4_ECOLI	XYNA_PRERU	OXAA_CHIMU	XLNA_AGABI	DNJM MYCPN	Y044_UREPA	PEDA_LACHE	CCHL_SCHPO	OMPV_VIBAN	OXAA_CHLTR	P65 MYCPN	GTFS_STRDO	- 1	CICA_PAEPP
	gth DB	283 1	283 1	289 1	398 1	399 1	398 1	398 1	399 1	398 1	562 1	358 1	363 1	363 1	468 1	283 1	624 1	418 1	623 1	837 1	277 1	369 1	787 1	333 1	910 1	782 1	474 1	377 1	257 1	787 1	423 1	365 1	235 1	695 1
** E	Match Length	2.4	۳.	3.6	16.7	16.1	15.6	15.0	14.0	13.5	6.7	6.7	6.4	6.4	6.4	۳.	7.	۲.	۲.	7.	6.1	6.1	6.1	6.1	6.1	6.0	6.0	٥.	6.	6.	6.	5.9	8.	Ф.
	Score	1253.5	1252.5	511	254	244.5	237	229	213.5	205	102	102	97.5	97.5	97	95.5	Ð	94.5	94	94	93.5	93.5	93.5	93	92.5	92	91.5	91			90	90	89	
Regult	No.	п	6	m	4	ស	9	7	89	0		11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	56			29		31	32	33

P75857 escherichia P95871 sulfolobus Q9kte vibrio chol Q9a0m0 streptococc 039163 wiseana iri Q8teg06 candida gla Q04956 plasmodium Q8dnm8 streptococc 028770 archaeoglob P39371 escherichia Q87740 vibrio para Q84fe2 vibrio vuln		(Phosphatidylcholine	e, Bacillus.	chter M., Kreft J.,	cereolysin AB, which yelinase genes: nucleotide	ased on a novel method for ntities of a cloned	e to effect target cell e + H(2)O = 1,2-	HOSPHOLIPASES C	oroduced through a collaboration its and the EMBL outstation- ere are no restrictions on its as its content is in no way Usage by and for commercial http://www.isb-sib.ch/announce/	
1 YCBS ECOLI 1 TRI_SULSO 1 SYL_VIBCH 1 PEDA_STRPY 1 COAT_IRV9 1 COAT_IRV9 1 TRPB_STRR6 1 TRPB_STRR6 1 TRPB_STRR6 1 YF67 ARCFU 1 YJHT ECOLI 1 SYL_VIBVU	ALIGNMENTS	(D; PRT; 283 AA. Created) Last sequence update) Last annotation update) Sec (EC 31.14.3) (PLC)	Bacillales, Bacillaceae,	PubMed=2536680; :-Rodz A.L., Leimeister-Waechter M.,	erminant, d sphingom	.A. Goebel W.; ed DNA sequencing based on near-milligram quantities	Locus Tech. 2:108-114 (1985). FUNCTION: Required, with sphingomyelinase (FONCTION: Required, with sphingomyelinase Iyais (hemolysis). ATABLYIC ACTIVITY: A phosphatidylcholine diacylglycerol + choline phosphate. COFACTOR: Binds 3 zinc ions.		pyright. It is le of Bioinformat Institute. The utions as long is not removed agreement (See @isb-sib.ch).	9.1; 4.1; Zn dep. PLPC. PLPC. 1. FHLPASEC. dep_PLPC; 1.
5.8 866 5.8 1068 5.8 484 5.8 484 5.8 695 5.7 407 5.7 295 5.7 295 5.7 8857 5.7 8857		STANDARD; (Rel. 28, Creal(Rel. 28, Last(Rel. 41, Laste e C precursor hohydrolase) (cutes;	: 1	cereus cytolytic det ne phospholipase C an l genetic linkage."; 171:744-753(1989).	SEQUENCE OF 50-142 FROM N.A. Gilmore M.S., Gilmore K.S., Goek "A new strategy for ordered DNA the rapid purification of near-	Lancin Tech. 2:108-114 (1985) FUNCTION: Required, with spi Yusis (hemolysis). CATALYTIC ACTIVITY: A phosph diacylglycerol + choline pho COFACTOR: Binds 3 zinc ions	Monomer. TY: BELONGS TO	SS-PROT entry is the Swiss Instit bean Bioinformati non-profit inst and this stateme requires a licen in email to licen	, M24149; AAA91819.1; ; M35411; AAA22524.1; \$18978; PS0197. ; P00598, 1AH7. ; PFCO I PR001531; Zn dep PLPC. ; PF00882; Zn dep PLPC; 1. TS; PR00479; PRPHILPASEC. om; PD003946; Zn dep PLPC; 1.
34 35 336 336 337 339 339 440 440 88 88 440 88 87 442 87 87 87 87 87 87 87 87		1 ACCE HLD BACCE 33376; 1-FEB-1994 8-FEB-2093 hospholipas holinephosp	Bacillus cereuf Bacteria; Firmio NCBI_TaxID=1396	SEQUENCE FROM N.A STRAIN=GP-4; MEDLINE=89123149; Gilmore M.S., Cru Goebel W.:	illus ses th ce and teriol	SEQUENCE OF Gilmore M.S. "A new strate the rapid pur	Gene Anal. To -!- FUNCTION 19818 (hw -!- CATALYTI diacylgl:	-!- SUBUNIT: Monomer -!- SIMILARITY: BELO FAMILY.	This SWISS-PROT between the SW the European Bi use by non-pr modified and th entities requir or send an emai	EMBL; M32119 EMBL; M35411 PIR; S18978; HSSP; P09598 InterPro; IPI InterPro; IPP Ffam; PF0088 PRINTS; PR00
		RESULT PHILD B AC DT O DT O DT O DT O DT O DT O DE DT O DE	88888	3 2 2 2 2 2 2 3 2 5 2 5 2	##### #####	R R R R F	558888	ខ្លួនទ	888888888	22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

```
Bacillus cereus."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     47
72
72
81
82
92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VARIANT
VARIANT
VARIANT
VARIANT
HELIX
HELIX
HELIX
TURN
TURN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              METAL
METAL
METAL
METAL
METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CHAIN
METAL
METAL
METAL
  ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DIMSRNTTIVNPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYDPDTGTTYIPF 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 DIMSRNTTLVKQDRVALLNEWRTELENGIYAADXENPYYDNSTFASHFYDPDNGKTYIPY 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Johansen T., Holm T., Guddal P.H., Sletten K., Haugli F.B., Little C.; "Cloning and sequencing of the gene encoding the phosphatidylcholine-preferring phospholipase C of Bacillus cereus.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      120 AKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFTNLSYPMGFH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180 SKYENFVDTIKUNYIVSDSNGYMNWKGANPEDWIEGAAVAAKQDYPGVVNDTIKDWFVKA
                                                                                                                                                                                                                                                                                                                                                                                                                                1 MKKKVLALAAMVALAAPVQSVVFAQTNNSBSPAPIL-RWSAEDKHNEGINSHLWIVNRAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gape
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAIN=VKM B-164;
MEDLINE=3249510; PubMed=8387306;
MEDLINE=3249510; PubMed=8387306;
Mincleotide sequence of phospholipsec C and sphingomyelinase genes from Bacillus cereus BKM-B164 (letter).";
Bioorg. Khim. 19:133-138 (1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PHIC BACCE STANDARD; PRT; 283 AA.

PUBS 384.

01-MAR-1989 (Rel. 10, Last sequence update)

128-FEB-2003 (Rel. 41, Last annotation update)

Phospholipase C precursor (EC 3.1.4.3) (PLC) (Phosphatidylcholine cholinephosphohydrolase) (Cereolysin A).
                                                                                                                                                                                                                                                                                                                                                                                          1;
                                                                                                                                                                                                                                                                                                                                           Query Match
82.4%; Score 1253.5; DB 1; Length 283;
Best Local Similarity 79.9%; Pred. No. 3.7e-92;
Matches 226; Conservative 23; Mismatches 33; Indels 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bacteria, Firmicutes, Bacillales, Bacillaceae, Bacillus.
V.Cb._TaxID=1396;
                                                                                                                                                                                                                                                                                                         32373 MW; 24D2E753402A6A44 CRC64;
## PROKAR_ZN_DEPEND_PLPC; 1.

## Signal; Zymogen; Hemolysis.

## Signal; Zymogen; Hemolysis.

## POTENTIAL.

##
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
STRAIN~SE-1;
MEDLINE~88313678; PubMed=3137122;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE OF 166-283 FROM N.A. STRAIN=IAM 1208;
                                                                                                                                                                                                                                                                                     184 1
283 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      [2]
SEQUENCE FROM N.A.
        PROSITE; PS00384;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PLC.
Bacillus cereus.
                               Zinc;
                                                                       25
39
39
52
107
160
160
180
                               Hydrolase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                          METAL
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 2
PHLC_BACCE
                                                 SIGNAL
PROPEP
CHAIN
METAL
METAL
METAL
METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AC DDT TO DDT TO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                           ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
```

```
MEDLINE-08296483; PubMed-104408; Sasaki T., Makino S., Nakamure S.,
Raindad A., Tangagani I. Panded-104408; Sasaki T., Makino S., Nakamure S.,
Michaeld G., Tangagani I. Panded-104649; Sasaki T., Makino G. (1994); Michaeld G. (1994); Sandari C., Saletten R., Mallacitida coll of the gene colling for sphingowelliase of Bacillus cereus.; Sandari C., Saletten R., Mallacitida C., Dodono R., Darchaeld S., Dayer M., Expendituda I., Saletten R., Mallacitida C., Dodono R., Darchaeld S., Dayer M., Saletten R., Mallacitida C., Dodono R., Darchaeld S., Dayer M., Saletten R., Mallacitida C., Dodono R., Darchaeld S., Dayer M., Saletten R., Mallacitida C., Dodono R., Darchaeld S., Dayer M., Saletten R., Mallacitida C., Dodono R., Darchaeld S., Dayer M., Saletten R., Mallacitida C., Dodono R., Darchaeld S., Dayer M., Saletten R., Mallacitida C., Dodono R., Darchaeld S., Dayer M., Saletten R., Mallacitida C., Dodono R., Darchaeld S., Dayer M., Saletten R., Mallacitida C., Dodono R., Darchaeld S., Dayer M., Saletten R., Mallacitida C., Dodono R., Darchaeld S., Dayer M., Saletten R., Mallacitida C., Dodono R., Darchaeld S., Dayer M., Saletten R., Mallacitida C., Dodono R., Darchaeld S., Dayer M., Saletten R., Mallacitida C., Dodono R., Darchaeld S., Dayer M., Saletten R., Mallacitida A., M
```

```
BY SIMILARITY.
PHOSPHOLIPASE C
ZINC 3 (BY SIMI)
ZINC 3 (BY SIMI)
ZINC 1 (BY SIMI)
ZINC 1 (BY SIMI)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 25
289
289
52
65
106
 [2]
SEQUENCE FRC
STRAIN=EGD /
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PROPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHAIN
   AKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFTNLSYPMGFH 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MKKKVLALAAMVALAAPVQSVVFAQTNNSESPAPIL-RWSAEDKHNEGINSHLWIVNRAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DIMSRNTTIVNPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYDPDTGTTYIPF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SKYENFUDTIKNNYIVSDSNGYWNWKGANPEDWIEGAAVAAKODYPGVVNDTTKDWFVKA
                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PHLC LISMO STANDARD; PRT; 289 AA.
PHLC LISMO STANDARD; PRT; 289 AA.
P33378;
01-FEB-1994 (Rel. 28, Created)
01-FEB-1994 (Rel. 28, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
28-FEB-2003 (Rel. 28, Last annotation update)
28-FEB-1094 (Rel. 28, Last annotation update)
28-FEB-10
                                                                                                                                                                                                                                                                                                                                                                                                               1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Vazquez-Boland J.-A., Kocks C., Dramsi S., Ohayon H., Geoffroy Mengaud J., Cossart P.; "Nucleotide sequence of the lecithinase operon of Listeria monocytogenes and possible role of lecithinase in cell-to-cell spread.";
                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity 80.2%; Pred. No. 4.4e-92;
Matches 227; Conservative 23; Mismatches 32; Indels 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bacteria, Firmicutes, Bacillales, Listeriaceae, Listeria
NCBI_TaxID=1639;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AVSOEYADKWRAEVTPVTGKRLMEAQRVTAGYIHLWFDTYVNR 282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AVSQEYADKWRAEVTPWTGKRLMDAQRVTAGYIQLWFDTYGDR 283
                                                                                                                                                                                                                                                                                                                                                   32383 MW; ACS452EFF2E22B19 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=92104678; PubMed=1309513;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Infect. Immun. 60:219-230(1992)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Serovar 1/2c;
                                                                                                                                                  169
173
178
                                                                                                                                                                                                                                                                                                                                 244 :
283 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A. STRAIN=LO28 / Sero
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        240
                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                          STRAND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  T 3
LISMO
                                                                                                                                                                                           HELIX
HELIX
                                                                                                                    HELIX
                                                                                                                                                                                                                                                                       HELIX
                                                                                                                                                                                                                                           HELIX
                                                                                                                                  TURN
TURN
TURN
                                                                                                      TURN
                                                                                                                                                                                                                           TURN
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ሯ
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE OF 144-152.

MEDLINE=91267617; PubMed=1904842;
Geoffroy C., Raveneau J., Beretti J.L., Lecroisey A.,
Geoffroy C., Raveneau J., Beretti J.L., Lecroisey A.,
Geoffroy C., Raveneau J., Barche P.;
Vazquez-Boland J.-A., Alouf J.E., Berche P.;
Thospholipase C from Listeria monocytogenes.";
Infect. Immun. 59:2382-2388 [1931].
Infect. Immun. 59:2382-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.

SEQUENCE FROM N.A.

SEQUENCE TO Serovar 1/2a;

SEQUENCE TO Serovar 1/2a;

SEQUENCE TO SEROVAR 1.2a;

MEDINEE-21537279; PubMed=11679669;

Glaser P., Frangeul L., Buchrieser C., Rusniok C., Amend A.,

Baquero F., Berche P., Bloecker H., Brandt P., Chakraborty T.,

Charbit A., Chectouani F., Couve E., de Daruvar A., Dehoux P.,

Domann B., Dominguez-Bernal G., Duchaud E., Durant L., Dussurget O.,

Entian K.-D., Feihi H., Garcia-del Portillo F., Garrido P.,

A Gautier L., Goebel W., Gomez-Lopez N., Hain T., Hauf J., Jackson D.,

Jones L.—M., Kaeft J., Kurh M., Kunst F., Kurapkat G.,

Madueno E., Matcournam A., Mata Vicente J., No E., Nedjari H.,

Nordsiek G., Novella S., de Pablos B., Perez-Diaz J.-C., Purcell R.,

Nordsiek G., Novella S., de Pablos B., Perez-Diaz J.-C., Purcell R.,

Varquez-Boland J.-A., Voss H., Wehland J., Cossart P.,

Science 294:849-852(2001).
MEDILINE 22258410; PubMed-1582425;
Domann E., Wehland J., Rohde M., Pistor S., Hartl M., Goebel W.,
Leimeister-Waechter M., Whensher M., Chakraborty T.;
"A novel bacterial virulence gene in Listeria monocytogenes required
for host cell microfilament interaction with homology to the
proline-rich region of vinculin.";
EMBO J. 11:1981-1990(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; M82881; AAA2527011; -

R EMBL; X59723; CAA42408.1; -

R EMBL; AL591974; CAD00732.1; -

R EMBL; AL591974; CAD00732.1; -

R EMBL; API100; API100.

PIR; API100; API100.

R Listilizer; LM000205; -

R InterPro; IPR00847; PLC Nuclease.

R InterPro; IPR00847; PLC; I.

R Pfam; PR00882; Zn dep PLPC; R

R ProDom; PR00892; Zn dep PLPC; I.

R PRINTS; PR00479; PREHFHLASEC.

R ProDom; PR003946; Zn dep PLPC; I.

R PRINTS; PR003846; Zn dep PLPC; I.

R PRSITE; PS00384; PRÖKAR ZN DEPEND PLPC; I.

R PKSITE; PS00384; PRÖKAR ZN DEPEND PLPC; I.

R SIGNAL.

S SIGNAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3 (BY SIMILARITY).
3 (BY SIMILARITY).
1 (BY SIMILARITY).
1 (BY SIMILARITY).
```

```
Signal.
SIGNAL
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DOMAIN
DOMAIN
DOMAIN
METAL
                                         REVIEW
   243
                                                                                                                                                                                                                                                                                                                                               SHLWIVNRAIDIMSRNTTIVNPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYD 109
                                                                                                                                                                                                                                                                                                                                                                   64 THYWLEKQAEKILAKDVNHMRANLMNELKKFDKQIAQGIYDADHKNPYYDTSTFLSHFYN 123
                                                                                                                                                                                                                                                                                                                                                                                                                           PDTGTTYIPFAKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANF 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TNLSYPMGFHSKYENFVDTIKNNYIVSDSNGYWNWKGANPEDWIEGAAVAAKQDYPGVVN 229
                                                                                                                                                                                                                                                                                                          63
                                                                                                                                                                                                                                                                                            4 KKVVLGMCLIASVLVPPVTIKANACCDEYLQTPAAPHDIDSKLPHKLSWSADNPTNTDVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                 2 KKKVLALAAMVA-LAAPVQSVV-----PAQT----NNSESPAP-ILRWSAEDKHNEGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN=ATCC 638;
MEDLINE=89108588; PubMed=2536356;
Tso J.Y., Siebel C.;
"Cloning and expression of the phospholipase C gene from Clostridium perfringens and Clostridium bifermentans.";
Infect. Immun. 57:468-476(1989).
                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN=ATCC 638; MubMed=10377104; MEDLINE=99307183; PubMed=10377104; Jepson M., Howells A.M., Bullifent H.L., Bolgiano B., Crane D.T., Jepson M., Holley J., Jayasekera P., Titball R.W.; "Differences in the carboxy-terminal (putative phospholipid binding) domains of Clostridium perfringens and Clostridium bifermentans phospholipaess C influence the hemolytic and lethal properties of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAIN-KZ 1012;
Karasawa T., Wang X., Maegawa T., Michiwa Y., Miwa K., Nakamura S.;
"C. sordellii phospholipase C.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PHLC_CLOBI STANDARD; PRT; 398 AA.

904019, 908UZ4; 098532;
01-PEB-1991 (Rel. 17, Last sequence update)
01-FEB-1991 (Rel. 17, Last sequence update)
10-CCT-2003 (Rel. 42, Last annotation update)
Phospholipase C precurent (EC 3.1.4.3) (PLC) (Phosphatidylcholine cholinephosphohydrolase) (Cbp).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Clostridium bifermentans.
Bacteria, Firmicutes; Clostridia; Clostridiales; Clostridiaceae;
Clostridium.
                                                                                                                                                                                                                                  18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      244 AKTKKSYLVG-----NSEWKKDTVEPTGARLRDSQQTLAGFLEFW 283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                230 DITKDWFVKAAVSQEYADKWRAEVTPVTGKRLMEAQRVTAGYIHLW 275
                                                                                                                                                                                              Length 289;
                     (BY SIMILARITY)
                                                                                                                                                                                                                                  55; Mismatches 107; Indels
ZINC 1 (BY SIMILARITY).
ZINC 1 AND 3 (BY SIMILARITY
ZINC 2 (BY SIMILARITY).
ZINC 2 (BY SIMILARITY).
ZINC 2 (BY SIMILARITY).
X -> N (IN REF. 2).
I -> T (IN REF. 2).
D -> G (IN REF. 2).
W, 0F35A2A3EDA6E372 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A., AND CONSTRUCTION OF A HYBRID ENZYME.
                                                                                                                                                                                            33.6%; Score 511; DB 1; 37.1%; Pred. No. 2.2e-33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A., AND CHARACTERIZATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          infect. Immun. 67:3297-3301(1999)
                                                                                                                                                         33277 MW;
                                                                                                                                                                                                              Best Local Similarity 37.1
Matches 106; Conservative
       169
173
179
193
                                                                                                                                                       289 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=1490;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            these enzymes.";
     169
173
179
193
                                                                                                                                                                                                                                                                                                                                                   20
   METAL
METAL
METAL
METAL
METAL
CONFLICT
                                                                                                                                       CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                             110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      170
                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLOBI
       8444444
                                                                                                                                                                                                                                                                                                        요
                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HERER REPARED TO THE 
                                                                                                                                                                                                                                                                          È
                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                           ઠે
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        intermediate between the two.
SIMILARITY: BELONGS TO THE BACTERIAL ZINC-METALLOPHOSPHOLIPASES C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; ABUSEDS; BABSASSII; -.

EMBL; B30565; B30565.

InterPro; IPR001024; Lipoxygenase_LH2.

InterPro; IPR0018976; PLAT_LH2.

InterPro; IPR001891; PLC Nuclease.

InterPro; IPR001831; Zn dep_PLPC.

Pfam; PF001892; Zn dep_PLPC.

Pfam; PF001892; Zn dep_PLPC.

ProDom; PD003946; Zn dep_PLPC; 1.

PROSITE; PSS00195; PLAT; 1.

PROSITE; PSS001984; PROKAR_ZN DEPEND PLPC; 1.

RAGITE; PSS00184; PROKAR_ZN DEPEND PLPC; 1.

RAGITE; PSS00184; PROKAR_ZN DEPEND PLPC; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SIMILARITY).
(VIA CARBONYL OXYGEN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Y SIMILARITY).
Y SIMILARITY).
Y SIMILARITY).
Y SIMILARITY).
D 3 (BY SIMILARITY).
Y SIMILARITY).
Submitted (MAY-2001) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SIMILARITY)
SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ZINC 1 (BY SIMILARITY).
ZINC 1 (BY SIMILARITY).
ZINC 3 (BY SIMILARITY).
ZINC 3 (BY SIMILARITY).
ZINC 3 (BY SIMILARITY).
ZINC 3 (BY SIMILARITY).
ZINC 1 AND 3 (BY SIMILARITY).
ZINC 2 (BY SIMILARITY).
ZINC 3 (BY SIMILARITY).
ZINC 3 (BY SIMILARITY).
ZINC 4 (BY SIMILARITY).
ZINC 5 (BY SIMILARITY).
ZINC 6 (BY SIMILARITY).
ZINC 7 (BY SIMILARITY).
ZINC 7 (BY SIMILARITY).
ZINC 1 (BY SIMILARITY).
ZINC 1 (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BY SIMILARITY.
PHOSPHOLIPASE C.
PHOSPHOLIPASE C.
LINKER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -! - SIMILARITY: Contains 1 PLAT domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBL; AF072123; AAD41623.1; -. EMBL; AB061869; BAB83265.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              26
2398
272
272
273
374
37
37
37
1156
1156
1178
1178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 298
```

```
METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
  ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                               10;
                                                                                                                                                                                                                                                                             141 KEATFLIGGGLHYLGDLNTPYHASNVTAVDSP--GHVKYETFVEERKDNYALNTSGNDTT 198
                                                                                                                                                                                                                                                              93 YENPYYDNSTYASHFYDPDTGTTY-----IPFAKHAKETGAKYFNLAGQAYQNQDM 143
                                                                                                                                                                                                                                                                                                            144 QQAFPYLGLSLHYLGDVNQPWHAANFINLSYPMGFHSKYENFVDTIKANYIVSDS---- 198
                                                                                                                                                                                                                                                                                                                                                         NGYWNWKGANP-----EDWIEGAAVAAKQDYPGVVNDTTKDWFVKAAVSQEYADKWRA 251
                                                                                                                                                                                                                                                                                                                                                                      :| : | : | SGVYKEAMENPSFNKWMTQNSIKYAKIA------KDLYYSHSTMSHSWDDW-- 243
                                                                                                                                                                                                                                   26 AWDGKKDGTGTHSLIAEHGLSMLNND---LSGNESQQVKDNIKILNEYLGDLKLGSTYPD 82
                                                                                                                                                                                                                  40 AEDKHNEGINSHLWIVNRAIDIMSRNTIIVNPNET-----ALLNEWRADLENGIYSAD 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Jopson M., Titball R.W.;
"Structure and function of clostridial phospholipases C.";
"Structure and function of clostridial phospholipases C.";
Microbes Infect. 2:1277-1284(2000).
-!- FUNCTION: Bacterial hemolysins are exotoxins that attack blood cell membranes and cause cell rupture. Binds to eukaryotic membranes where it hydrolyzes phosphatidylcholine, sphingomyelin and phosphatidylethanolamine. The diacylglycerol produced can activate both the arachidonic acid pathway, leading to modulation of the inflammatory response cascade and thrombosis, and protein kinase C, leading to activation of eukaryotic phospholipases and
                                                                                                                                                                                              54; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
10-CCT-2003 (Rel. 42, Last annotation update)
Phospholipase C precureox (EC 3.1.4.3) (PLC) (Phosphatidylcholine
cholinephosphohydrolase).
                       (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Clostridium sordellii.
Bacteria, Pirmicutes, Clostridia, Clostridiales, Clostridiaceae,
Clostridium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Karasawa T., Wang X., Maegawa T., Michiwa Y., Miwa K., Nakamura "C. sordellii phospholipase C.";
Submitted (MAY-2001) to the EMBL/GenBank/DDBJ databases.
CALCIUM 2 (BY SIMILARITY).
CALCIUM 2 (BY SIMILARITY).
CALCIUM 2 (VIA CARBONYL OXYGEN)
SIMILARITY).
                                                                                        2 AND 3)
                                                                                                                                                                       Length 398;
                                                                                                                                                                                             95; Indels
                                         CALCIUM 3 (BY SIMILARITY).
CALCIUM 2 (BY SIMILARITY).
CALCIUM 1 (BY SIMILARITY).
SRNS -> ARTQ (IN REF. 2 AND
GNT -> ENI (IN REF. 3).
                                                                                                             L -> S (IN REF. 3).
G -> D (IN REF. 3).
R -> K (IN REF. 3).
; OB628AFE7146BC56 CRC64;
                                                                                                                                                                      16.7%; Score 254; DB 1; 26.9%; Pred. No. 7.1e-13;
                                                                                                                                                                                                                                                                                                                                                                                                     252 EVTPVTGKRLMEAQRV-TAGYIHLWFDTYVN 281
                                                                                                                                                                                                                                                                                                                                                                                                                   ---DYSGREAIKNSQVCTAGFLYRFMNEVSN 271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT; 399 AA
                                                                                                                                                                                             49; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE=20465460; PubMed=11008117;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN=ATCC 9714 / NCIB 10717;
                                                                                                                                                  45366 MW;
                                                                                                                                                                      Query Match
Best Local Similarity 26.99
Matches 73; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                        311
357
398 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=1505;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PLC OR CSP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLOSO
                                                                                                                        CONFLICT
CONFLICT
SEQUENCE
                                                                            METAL
CONFLICT
CONFLICT
CONFLICT
                                                                                                                                                                                                                                                                                                                                                         199
                                                                                                                                                                                                                                                                                                                                                                              199
                                                                                                                                                                                                                                                                                                                                                                                                                                                              r s
croso
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REVIEW
셤
                                                                                                                                                                                                                                                              ઠે
                                                                                                                                                                                                                                                                                     ద
                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                    8
```

```
further membrane damage (By similarity).

-!- CATALYTIC ACTIVITY: A phosphatidylcholine + H(2)O = 1,2-
diacyldylceol + choline phosphate.

-!- CATALYTIC ACTIVITY: A phosphatidylcholine + H(2)O = 1,2-
diacyldylceol + choline phosphate.

-!- COPACTOR: Binds 3 zinc and 3 calcium ions (By similarity).

-!- DOWAIN: The protein is composed of 2 domains; the N-terminal domain contains the phospholipaee C active site (PLC), in a cleft which is also occupied by the 3 zinc ions. The C-terminal domain as a putative phospholipid-recognition domain, which shows structural homology with phospholipid-binding C2-like domains from a range of eukaryotic proteins. The ability to bind membrane phospholipids in a Ca(2+) dependent manner and toxicity is conferred by this C-terminal domain, which also contributes to the sphingomyelinase activity (By similarity).
                                                                                                                                                                                                                                                                                      This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the BMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28 AMDGKKDGTGTHALIAEHGLTWIAND---LNQNEPKPIKQNIEILNKYLKDLKIGSTFPD 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AEDKHNEGINSHLWIVNRAIDIMSRNTTIVNPNE-----TALLNEWRADLENGIYSAD
                                                                                                                                                                                                                                                                                                                                                                                                                                         (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (BX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           65;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 (BY SIMILARITY).
3 (BY SIMILARITY).
3 (BY SIMILARITY).
1 AND 3 (BY SIMILARITY).
2 (BY SIMILARITY).
2 (BY SIMILARITY).
2 (BY SIMILARITY).
3 (BY SIMILARITY).
3 (BY SIMILARITY).
4 (BY SIMILARITY).
5 (BY SIMILARITY).
5 (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (BY SIMILARITY).
(BY SIMILARITY).
(BY SIMILARITY).
(BY SIMILARITY).
(VIA CARBONYL OXYGEN) (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 399;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       85; Indela
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ALCIUM 3 (BY SIMILARITY)
ALCIUM 1 (BY SIMILARITY)
83A303FFDA96F229 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BY SIMILARITY.
PHOSPHOLIPASE C.
PHOSPHOLIPASE C.
LINKER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4e-12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16.1%; Score 244.5; 27.3%; Pred. No. 4e-1: tive 39; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (BX
(BX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CALCIUM 3 (B
CALCIUM 2 (B
CALCIUM 2 (B
CALCIUM 2 (V
SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CALCIUM 2
CALCIUM 3
CALCIUM 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ZINC 1 (BY
ZINC 3 (BY
ZINC 3 (BY
ZINC 3 (BY
ZINC 1 AND
ZINC 1 AND
ZINC 2 (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CALCIUM 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CALCIUM
                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; AB061868; BAB83263.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     45652 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             324
325
325
364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       320
320
321
323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     399 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'Best'Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       299
300
320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         71;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DOMAIN
DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHAIN
```

```
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       METAL
SOLUTION TO THE STATE STATES AND SECOND SECO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ଚ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                 YENPYYDNSTYASHFYDPDTGTTYI------PFAKHAKETGAKYFNLAGQAYQNQDM 143
                                                                                                                                                                       204 WKGANPEDWIEGAAVAAKQDYPGVVNDTTKDWFVKAAVSQEYADKWRAEVTPVTGKRLME 263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE-22005774; PubMed-12009886; Justin N., Walker N., Bullifent H.L., Songer G., Bueschel D.M., Jost H., Naylor C.E., Miller J., Moss D.S., Titball R.W., Basak A.K.; The first strain of Clostridium perfringens isolated from an avian source has an alpha-toxin with divergent structural and kinetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDIINE=20465460; PubMed=11008117;
Jepson M., Titball R.W.;
Jepson M., Titball R.W.;
Jepson M., Titball R.W.;
Jepson M., Titball R.W.;
Microbes Infect. 2:1277-1284(1000).

-I- FUNCTION: Bacterial hemolysins are exotoxins that attack blood cell membranes and cause cell rupture. Constitutes an essential virulence factor in gas gangrene. Binds to eukaryotic membranes where it hydrolyzes both phosphatidylcholine and sphingomyelin, causing cell rupture. The diacylglycerol produced can activate both the arachidomic acid pathway. Leading to modulation of the inflammatory response cancade and thrombosis, and protein kinase chilamatory response cacade and thrombosis, and protein kinase C, leading to activation of eukaryotic phospholipases and further
                                                                                                              143 KEATFLIGGGMYYLGDLNTPYHAANVTAVDSP--GHVKXETFVENKKENYALNTAG----
                                                                                     QOAFFYLGLSLHYLGDVNQPMHAANFTNLSYPMGFHSKYENFVDTIKNNYIVSDSNGYWN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CHARACTERIZATION, AND X-RAY CRYSTALLOGRAPHY (2.4
                                                                                                                                                                                                                                                                                                                                                                                                                                               28-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
28-FEB-2004 (Rel. 43, Last sequence update)
Phospholipase (2 precursor (EC 3.1.4.3) (PLC) (Phosphatidylcholine cholinephosphohydrolase) (Alpha-toxin) (Hemolysin) (Lecithinase).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Clostridium perfringens.
Bacteria, Firmicutes, Clostridia, Clostridiales, Clostridiaceae,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Titball R.W., Naylor C.E., Basak A.K.; "The Clostridium perfringens alpha-toxin."; Anaerobe 5:51-64(1999).
                                                                                                                                                                                                                                                                                                                                                                                                         398 A.A.
                                                                                                                                                                                                                                                          264 AQRVTAGYI-----HLWFD 277
                                                                                                                                                                                                                                                                                                    225 AKKAKALÝYSHSTMKHNWDD 244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Blochemistry 41:6253-6262(2002).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A., CHARACTEI
ANGSTROMS) OF THE OPEN FORM.
                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=1502;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Clostridium
                                                                                                                                                                                                                                                                                                                                                                                                              CLOPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IC OR CPA
                                                                                          144
                                                                                                                                                                                                                   197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REVIEW
                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                           ò
                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                             ò
                                                                                        ઠે
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61 I----MSRNTTIVNPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYDPDTGTTY 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        49 ILENDLSSNEPEVIRNNLEILKQNWHDLQLGSTYPDYDKNAYD--LYQDHFWDPDTDNNF 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               168 NFINLSYPMGFHSKYENFVDIIKNNYIVSDSNGYWNWKGANPEDWIEGAAVAAKQDYPGV 227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 MKKKVLALAAMVALAAPVQSVVFAQTNNSESPAPILRWSAEDKHNEGINSHLWIVNRAID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 117 IPFAK------HAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAA
conferred by this C-terminal domain, which also contributes to the
                        sphingomyelinase activity.
MISCELLANEGUS: This bacteria was isolated from a diseased swan.
SIMILARITY: Contains 1 PLAT domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         90 ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (VIA CARBONYL OXYGEN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (VIA CARBONYL OXYGEN)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PROSITE; PS50095; PLĀT; Ī.
PROSITE; PS00384; PROKAR ZN DEPEND PLPC; FALSE NEG.
Hydrolase; Toxin; Hemolysis; Calcium; Calcium-binding; Zinc;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 398;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15.6%; Score 237; DB 1; Length 39:
26.4%; Pred. No. 1.6e-11;
ive 47; Mismatches 113; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PLAT.
ZINC 1.
ZINC 3.
ZINC 3.
ZINC 3.
ZINC 3.
ZINC 3.
ZINC 2.
ZINC 3.
ZINC 3.
ZINC 4.
ZINLARITY).
CALCIUM 3 (BY SIMILARITY).
CALCIUM 2 (BY SIMILARITY).
CALCIUM 2 (BY SIMILARITY).
CALCIUM 2 (BY SIMILARITY).
CALCIUM 3 (BY SIMILARITY).
CALCIUM 1 (BY SIMILARITY).
CALCIUM 1 (BY SIMILARITY).
CALCIUM 1 (BY SIMILARITY).
W, EF3C95AF603CD5A7 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BY SIMILARITY.
PHOSPHOLIPASE C.
PHOSPHOLIPASE C.
LINKER.
                                                                                                                                                                                                                                                                                                                                             InterPro; IPR001024; Lipoxygenase_LH2.
InterPro; IPR008976; PLAT LH2.
InterPro; IPR008947; PLC Nuclease.
InterPro; IPR001531; Zn dep_PLPC.
Pfam; PP00882; Zn dep_PLPC;
PRINTS; PR00479; PRPHPHLPASEC.
PRODOR; PD00346; Zn dep_PLPC; 1.
                                                                                                                                                                                                                                                                                                  EMBL; AF204209; AAF20094.1; -. PDB; 1KHO; 19-JUN-02.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  45598 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity 26.4% tes 79; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Signal; 3D-structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  398 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 321
322
324
324
```

Ď

```
273
                                        214 -NSWSKEFARSFAKTAKDLYYSHANMSCSWDEWDYAAKVA-----LANSQKGTSGYIY 265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Katayama S.-I., Matsushita O., Minami J., Mizobuchi S., Okabe A.; "Comparison of the alpha-toxin genes of Clostridium perfringens type A and C strains: evidence for extragenic regulation of transcription."; Infect. Immun. 61:457-463(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
STRAIN=NCTC 8237 / ATCC 13124 / CN 1491 / Type A;
STRAIN=NCTC 8237 / ATCC 13124 / CN 1491 / Type A;
MEDLINES=89313290; PubMed=2546005;
Lealie D., Fairweather N., Pickard D., Dougan G., Kehoe M.;
"Phospholipase C and haemolytic activities of Clostridium perfringens alpha-toxin cloned in Escherichia coli: sequence and homology with a
                   228 VNDTTKDW---FVKAAVSQEYA-----DKW--RAEVTPVTGKRLMEAQRVTAGYIH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  the phospholipase C gene from Clostridium
                                                                                                                                                                     PLD1_CLDF

91740_CLDF

91740_C
                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A., AND SEQUENCE OF 29-39.
STRAIN=NCTC 8237 / ATCC 13124 / CN 1491 / Type A;
MEDLINE=89228034, PubMed=2540749;
Okabe A., Shimizu T., Hayashi H.;
"Cloning and sequencing of a phospholipase C gene of Clostridium
                                                                                                                                                                                                                                                                                                                                                  Clostridium perfringens.
Bacteria, Pirmicutes, Clostridia, Clostridiales, Clostridiaceae,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAIN=8-6 / Type A;
MEDLINE=90188507; PubMed=2560137;
Saint-Joanis B., Garnier T., Cole S.T.;
"Gene cloning shows the alpha-toxin of Clostridium perfringens contain both sphingomyelinase and lecithinase activities.";
Mol. Gen. Genet. 219:453-460(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A., AND SEQUENCE OF 29-53.
STRAINS-NCTC 8237 / ATCC 13124 / CN 1491 / Type A;
MEDLINE-8910874; Pubmed=2536355;
Titball R.W., Hunter S.E.C., Martin K.L., Morris B.C.,
Shuttleworth A.D., Rubidge T., Anderson D.W., Kelly D.C.;
"Molecular cloning and nucleotide sequence of the alpha-toxin (phospholipase C) of Clostridium perfringens.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A., AND CHARACTERIZATION.
STRAIN=NCTC 8237 / ATCC 13124 / CN 1491 / Type A;
MEDLINE-89108589; Pubmed-2536356;
TBO J'Y., Siebel C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Biochem. Biophys. Res. Commun. 160:33-39(1989).
                                                                                                                                                             398 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       bifermentans.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A., AND CHARACTERIZATION
                                                                                                                                                             PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bacillus cereus phospholipase C."; Mol. Microbiol. 3:383-392(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
STRAIN=NCIB 10662 / Type C;
MEDLINE=93138764; Pubmed=8423073;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Cloning and expression of the ph
perfringens and Clostridium bifer
Infect. Immun. 57:468-476(1989).
                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=1502;
                                                                                                                                                                                                                                                                                                                                                                                             Clostridium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          perfringens
                                                                                                                                                             CLOPE
                                                                                                                                         CLOPE
                   ઠ
                                                        g
```

SEQUENCE FROM N.A.

```
[13]
MUTAGENESIS OF THR-300, AND CONSERVED ASPARTATE AND TYROSINE RESIDUES
        / Type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN=13 / Type A;
MEDLINE=21664373; PubMed=11792842;
Shimizu T., Ohtani K., Hirakawa H., Ohshima K., Yamashita A.,
Shiba T., Ogasawara N., Hattori M., Kuhara S., Hayashi H.;
"Complete genome sequence of Clostridium perfringens, an anaerobic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WITAGENESIS OF ASP-297; TYR-303; TYR-315; TYR-359 AND ASP-364.
STRAIN=NCTC 8237 / ATCC 13124 / CN 1491 / Type A;
MEDLINE-20189543.
Alabel-Giron A., Flores-Diazz M., Guillouard I., Naylor C.E.,
Titball R.W., Rucavado A., Lomonte B., Basak A.K., Gutierrez J.M.,
Cole S.T., Thelestam M.;
"Identification of residues critical for toxicity in Clostridium
perfringens phospholipase C, the key toxin in gas gangrene.";
Eur. J. Blochem. 267:5191-5197(2000).
                                                                                                                                                                                                                                                                                                                                                                                                        and
STRAIN=13 / Type A, K2211 / Type A, L9 / Type D, NCIB 10663 / Type NCIB 10691 / Type B, NCIB 10748 / Type E, and PB6K / Type A; MEDLINE=96099301; PubMed=852524; Tsuteui K., Minami J., Mateushita O., Katayama S., Taniguchi Y., Nakamura S., Nishioka M., Okabe A.; Phylogenetic analysis of phospholipase C genes from Clostridium perfringens types A to E and Clostridium novyi.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
STRAIN=K21340 / Type A;
MEDLINE=96336195; PubMed=8709860;
Kameyama K., Mateushita O., Katayama S.-I., Minami J., Maeda M.,
Nakamura S., Okabe A.;
Nakamura S., Okabe A.;
Kanalyais of the phospholipase C gene of Clostridium perfringens
KZ1340 isolated from Antarctic soil.";
Microbiol. Immunol. 40:255-263(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nagahama M., Okagawa Y., Nakayama T., Nishioka E., Sakurai J., "Site-directed mutagenesis of histidine residues in Clostridium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN=8-6 / Type A;
MEDLINE-96294749; PubMed-8698464;
Guillouard I., Garnier T., Cole S.T.;
"Use of site-directed mutagemesis to probe structure-function relationships of alpha-toxin from Clostridium perfringens.";
Infect. Immun. 64:2440-2444(1996).
                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A., AND USE AS A VACCINE.
STRAIN=13 / Type A, CER 89L43 / Type A, CER 89L1105 / Type A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                dinter A., Williamson B.D., Dessy F., Coppe P., Bullifent H., Howells A.M., Titball R.W.;
"Molecular variation between the alpha-toxins from the type s (NCTC 8237) and clinical isolates of Clostridium perfringens associated with disease in man and animals.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MUTAGENESIS OF ZINC-BINDING, SUBSTRATE-BINDING, AND CATALYTIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAIN=8-6 / Type A; MEDLINE-98086094; PubMed=9426125; MEDLINE-98086094; PubMed=9426125; Guillouard II., Alzari P.M., Saliou B., Cole S.T.; The carboxy-terminal C2-like domain of the alpha-toxin from Clostridium perfringens mediates calcium-dependent membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MUTAGENESIS OF HISTIDINE RESIDUES.
STRAIN=NCTC 8237 / ATCC 13124 / CN 1491 / Type A;
MEDLINE=95173092; PubMed=7868589;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Proc. Natl. Acad. Sci. U.S.A. 99:996-1001(2002)
                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN=13 / Type A, CER 89L43 / T.
CER 89L1216 / Type A;
MEDLINE-96146062; PubMed=8581165;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 perfringens alpha-toxin.";
J. Bacteriol. 177:1179-1185(1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Microbiol. 26:867-876(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Microbiology 142:191-198(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      recognition.
```

```
셤
                                                                                                                                             g
                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                     셤
                                                                                                             ઠે
                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                   ઠે
                              ઠે
                                                                                                                                                                                                                        MUTAGENESIS OF ASP-297; TYR-359 AND PHE-362.
STRAIN-NCTC 8237 / ATCC 13124 / CN 1491 / Type A;
MEDLINE-21233265; PubMed=1133486;
Jepson M., Bullifent H.L., Crane B.T., Flores-Diaz M., Alape-Giron A.,
Jayasekera P., Lingard B., Moss D.S., Titball R.W.;
"Tyroane 31 and phenylalanine 334 in Clostridium perfringens
alpha-toxin are essential for cytotoxic activity.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STRAIN=NCTC 8237 / ATCC 13124 / CN 1491 / Type A;
MEDLINE=$1209550; PubMed=1902199;
Titball R.W., Leslie D.L., Harvey S., Kelly D.C.;
Hemolytic and sphingomyelinase activities of Clostridium perfringens alpha-toxin are dependent on a domain homologous to that of an enzyme
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Match 15.0%; Score 229; DB 1; Length 398; Local Similarity 27.1%; Pred. No. 6.8e-11; es 82; Conservative 44; Mismatches 109; Indels 68; Gaps
                                                                        Alape-Giron A.,
D.S., Basak A.K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "Use of genetically manipulated strains of Clostridium perfringens reveals that both alpha-toxin and theta-toxin are required for vascular leukostasis to occur in experimental gas gangrene.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAIN=NCTC 8237 / ATCC 13124 / CN 1491 / Type A;
BDDLINE-SOSS5924 PubMed=2111259;
Titball R.W., Rubidge Tallows in the alpha toxin of Clostridium "The role of histidine residues in the alpha toxin of Clostridium"
                                                                                                                                                                                                                                                                                                                                                                                                                                               늉
            MUTAGENESIS OF ASP-321; ASP-333 AND LYS-358.

STRAIN=NCTC 8237 / ATCC 13124 / CN 1491 / Type A;

MEDLINE=21023335; PubMed=1114782;

Malker N., Holley J., Maylor C.B., Flores-Diaz M., Alape-Giron A Carter G., Carr F.J., Thelestam M., Keyte M., Moss D.S., Basak A Miller J., Titball R.W.;

"Identification of residues in the carboxy-terminal domain of "Iostridium perfringens alpha-coxin (phospholipase C) which are required for its biological activities.";

Arch. Biochem. Biophys. 384:24-30(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SIMILARITY OF C-TERMINAL DOMAIN TO LIPOXYGENASES AND C-TERMINAL
                                                                                                                                                                                                                                                                                                                                                                                                                             Macfarlane M.G., Knight B.C.J.G., "The biochemistry of bacterial toxins. I. Lecithinase activity Cl.welchii toxins.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Clostridium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAIN-NCTC 8237 / ATCC 13124 / CN 1491 / Type A;
MEDLINE-89248307; PubMed-2497921;
MIJ1 Y., Sakurai J.;
"Contraction of the rat isolated aorta caused by Clostridium perfringens alopha toxin (phospholipase C): Evidence for the involvement of arachidonic acid metabolism.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=99386893, Pubmed=10486947,
Ellemor D.M., Baird R.N., Awad M.M., Boyd R.L., Rood J.I.
                                                                                                                                                                                                                                                                                                                                                                                                        IDENTIFICATION OF ALPHA-TOXIN AS AN ENZYME. Macfarlane M.G., Knight B.C.J.G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                from the human arachidonic acid pathway.";
infect. Immun. 59:1872-1874(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IMPORTANCE IN VIRULENCE OF GAS GANGRENE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEMS Microbiol. Lett. 56:261-265(1990)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                J. Pharmacol. 97:119-124(1989)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ochem. J. 35:884-902(1941).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Type A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IMPORTANCE OF ZINC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHARACTERIZATION.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   perfringens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STRAIN=13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation.
                                                                                                 270
                                                          223
                                                                              212
                                                                                                                QGVSILENDLSKNEPESVRKNLEILKENMHELQLGSTYPDYDKNAYD--LYQDHFWDPDT 102
                              164 MHAANFINLSYPMGFHSKYENFVDTIKNNYIVSDSNGYWNWKGANPEDWIEGAAVAAKQD
                                                                                                224 YPGVVNDTTKDW---FVKAAVSQEYA-----DKW--RAEVTPVTGKRLMEAQRVTAG
                    GTTYIP-----FAKHAKETG----AKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQP
                                                                                                                                                                                                                               28-FEB-2003 (Rel. 41, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
29-FEB-2003 (Rel. 42, Last ennotation update)
Phospholipase C precursor (BC 3.1.4.3) (PLC) (Phosphatidylcholine cholinephosphohydrolase) (Beta toxin).
                                                                                                                                                                                                                                                                                                Bacteria; Firmicutes; Clostridia; Clostridiales; Clostridiaceae;
Clostridium.
                                                                                                                                                                                                                                                                                                                                                            Hauer P.J., Rosenbusch R.F.; "Cloning and molecular characterization of the beta toxi "Cloning and molecular characterization of the beta toxi (phospholipase C) gene of Clostridium haemolyticum."; submitted (UUN-2002) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                              399 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -!- SIMILARITY: Contains 1 PLAT domain.
                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE=20465460; PubMed=11008117;
                                                                                                                                                                                                                                                                                            Clostridium haemolyticum.
                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=84025;
                                                                                                                                                             263 YIY 265
                                                                                                                                         271 YIH 273
                                                                                                                                                                                                                                                                                                                                                       STRAIN=7170;
                                                                                                                                                                                                   CLOHA
PHLC CLOHA
P59026;
                      113
                                                                                                                                                                                                                                                                                                                                                                                                               REVIEW.
                                                                                                                                                                                           RESULT 8
```

15;

57 RAIDIMSRNTIVNPNET----ALLNEWRADLENGIYSADYENPYYDNSTYASHFYDPDT 112

..

Best Loc Matches

셤 ઠે

ò

398 AA

PRT;

STANDARD;

(Rel. 41, Created)

٠,

```
STRAIN=CL49 / Type A; MEDLINE=96099301; PubMed=8522524; Tsutsui K., Minami J., Matsushita O., Katayama S.-I., Taniguchi Y., Nakamura S., Nishioka M., Okabe A.; "Phylogenetic analysis of phospholipase C genes from Clostridium perfaringens types A to B and Clostridium novyi."; J. Bacteriol. 177:7164-7170(1995).
                                        28-FEB-2003 (Rel. 41, Last sequence update)
10-0CT-2003 (Rel. 42, Last annotation update)
Phospholipase C precursor (EC 3.1.4.3) (PLC) (Phosphatidylcholine
                                                                                                                         Clostridium novyi.
Bacteria; Firmicutes; Clostridia; Clostridiales; Clostridiaceae;
                                                                                                                                                                                                                                                                                                                                                                                            Taguchi R., Ikezawa H.; "Phospholipase C from Clostridium novyi type A. I."; Biochim. Biophys. Acta 409:75-85(1975).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=20465460; PubMed=11008117;
                                                                                                                                                                                                                                                                                                                                                             STRAIN=IID 140 / Type A;
MEDLINE=76040159; PubMed=241423;
                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                               CHARACTERIZATION
                                                                                                                                                                     NCBI_TaxID=1542;
                                                                                                                                                          Clostridium.
                                28-FEB-2003
    CLONO
                                                                                                                                                                                                                                                                                                                                                                                                                                                          REVIEW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <u>-</u>
   the Buropean Bioinformatics Institute. There are no restrictions on its make by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MSRNTTIVNP----NETALLNEWRADLENGIYSADYENPYYDNSTYASHFYDPDTGTTYI 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                105 -FTKDSKWYLAYGINETGESQLRKLFALAKDEWKKGNYEQATWLLGQGLHYFGDFHTPYH 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 164 PSNVT--AVDSAGHTKPETYVEGKKDSYKLHTA------GAN-----SVKEFYP 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PFAKHAK-----ETG----AKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                166 AANFTNLSYPMGFHSKYENFVDTIKNNYIVSDSNGYWNWKGANPEDWIEGAAVAAKQDYP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 KKKVLALAAMVALAAPVQSVVFAQTNNSESPAPILRWSAEDKHNEGINSHLWIVNRAIDI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3 KKKILKFICSAVLS-----FTLPSGYKSYA----W---DGKVDGTGTHALIVTQAVEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CALCIUM 3 (BY SIMILARITY).
CALCIUM 3 (BY SIMILARITY).
CALCIUM 2 (BY SIMILARITY).
CALCIUM 2 (BY SIMILARITY).
CALCIUM 2 (VIA CARBONYL OXYGEN) (BY SIMILARITY).
CALCIUM 3 (BY SIMILARITY).
CALCIUM 3 (BY SIMILARITY).
CALCIUM 3 (BY SIMILARITY).
CALCIUM 1 (BY SIMILARITY).
CALCIUM 1 (BY SIMILARITY).
CALCIUM 1 (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             226 GVVNDTTKD-WFVKAAVSQEYADKWRAEVTPVTGKRLMEAQRVTAGYIHLWFD 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           205 TTLONTNLDNWIT-----EYSRGW------AKKAKNMYYAHATMSHSWKD 243
                                                                                                    R InterPro; IPR001024; Lipoxygenase_LH2.
R InterPro; IPR001024; Lipoxygenase_LH2.
R InterPro; IPR001034; PLAT_LH2.
R InterPro; IPR001531; Zn dep_PLPC.
R PRIMYS; PR00479; PRPHPHLPASEC.
R PROSITE; PS003946; Zn dep_PLPC; 1.
R PROSITE; PS00394; PROKAR ZN DEPEND PLPC; FALSE_NEG.
R PROSITE; PS00384; PROKAR ZN DEPEND PLPC; FALSE_NEG.
H Hemolysis; Hydrolase; Calcium, Calcium-binding; Zinc; Toxin; Signal.
I 28 BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           69
                                                                                                                                                                                                                                                                                                                                                        ZINC 1 (BY SIMILARITY).
ZINC 1 (BY SIMILARITY).
ZINC 3 (BY SIMILARITY).
ZINC 3 (BY SIMILARITY).
ZINC 1 (BY SIMILARITY).
ZINC 1 (BY SIMILARITY).
ZINC 2 (BY SIMILARITY).
ZINC 3 (BY SIMILARITY).
ZINC 3 (BY SIMILARITY).
ZINC 4 (BY SIMILARITY).
ZINC 5 (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 1; Length 399;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14.0%; Score 213.5; DB 1; 25.9%; Pred. No. 1.1e-09; tive 40; Mismatches 108;
                                                                                                                                                                                                                                                                                              PHOSPHOLIPASE C.
PHOSPHOLIPASE C.
LINKER.
                                           entities requires a license agreement (or send an email to license@isb-sib.ch)
                                                                                           EMBL; AF525415; AAM88377.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               45942 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity 25.9% nes 76; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                324
325
325
363
                                                                                                                                                                                                                                                                                                                                                             28
38
83
83
95
153
1157
1175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              325
325
363
399 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               METAL
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                              DOMAIN
DOMAIN
DOMAIN
                                                                                                                                                                                                                                                                                               CHAIN
                                                                                                                                                                                                                                                                                                                                                             METAL
METAL
                                                                                                                                                                                                                                                                                                                                                                                                           METAL
                                                                                                                                                                                                                                                                                                                                                                                            METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                          METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Loc
Matches
```

```
RA MEDILIMESZUSABULY TUDNEGEILUGBILITY

RA MEDILIMESZUSABULY TUDNEGEILUGBILITY

RETUCTURE and function of clostridial phospholipases C.";

MICTOBS INFECT. 21.277-1284 (2000)

- 1- FUNCTION: Bacterial hemolyshus are exotoxins that attack blood

CC - 1- FUNCTION: Bacterial hemolyshus are exotoxins that attack blood

CC - 1- FUNCTION: Bacterial hemolyshus are exotoxins that attack blood

CC - 1- FUNCTION: Bacterial hemolyshus are exotoxins that attack blood

CC - 1- FUNCTION: Bacterial hemolyshus acid pathway, leading to modulation

CC of the inflammanciory response cascade and thrombosis, and procedin

CC of the inflammanciory response cascade and thrombosis, and procedin

Kinase C, leading to activation of eukaryotic phospholipases and

further membrane damage (By similarity). This enzyme is hemolytic

CC - CATALYTIC ACTIVITY: A phosphatidylcholine + H(2)O = 1,2-

diacylglycerol + choline phosphaticy.

CC - CORACTOR: Binds J zinc and 3 calcium ions (By similarity).

- - SUBCELLULAR LOCATION: Secreted (By similarity).

- - SUBCELLULAR is emphased of 2 domains; the N-terminal

CC - CORACTOR: Binds is composed of 2 domains; the N-terminal

CC - DOMAIN: The procein is composed of 2 domains; which shows

STRUCTURAL HORSPHOLIPIES CCC of domains from

a range of eukaryotic proteins. The ability to bind membrane

CC conferred by this C-terminal domain, which also contributes to the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sphingomyelinase activity.
SIMILARITY: BELONGS TO THE BACTERIAL ZINC-METALLOPHOSPHOLIPASES C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SIMILARITY: Contains 1 PLAT domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR001024; Lipoxygenase_LH2.
InterPro; IPR008976; PLAT LH2.
InterPro; IPR008947; PLC Nuclease.
InterPro; IPR001531; Zn_dep_PLPC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; D32125; BAA06851.1; -.
```

RESULT 9
PHLC_CLONO

윱

ઠે

g δ g ò 셤 ò

ઠે

```
Saccharomycetales; Saccharomycetaceae; Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SGD; S0002669; EXG2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             562 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Similarity
                                                                                                  SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                       NCBI_TaxID=4932;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       glucose
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACT_SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Loc
Matches
      SOLUTION TO THE TENEFORM DEPORT OF THE TENEFORM OF THE TENEFORM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100 NSTY---ASHFYDPDT----GTTYIPFA-KHAKETGAKYFN-LAGGAYQNQDMQQAF 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              148 FYLGLSLHYLGDVNQPMHAANFTNLSYPMGFHSKYENFVDTIKNNYIVS-----DSNGYW 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 30 DGKKDGTGTHSMIVTQAVKVLEND---MSKDEPEIVKQNFKILQDNWHKFQLGSTYPDYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                42 DKHNEGINSHLWIVNRAIDIMSRNTTIVNPNETALLNEWRADLENGIYSADYENPY--YD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                --NWKGANPEDW----IEGAAVAAKQDY--PGVVNDTTKDWFVKAAVSQEYADKWRAEVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-0CT-1996 (Rel. 34, Created)
01-0CT-1996 (Rel. 34, Last sequence update)
01-0CT-1996 (Rel. 34, Last annotation update)
03-0CT-1996 (Rel. 34, Last annotation update)
01-0CT-1996 (Rel. 34, Last annotation u
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3 (BY SIMILARITY).
3 (BY SIMILARITY).
2 (BY SIMILARITY).
2 (BY SIMILARITY).
2 (BY SIMILARITY).
3 (BY SIMILARITY).
4 (BY SIMILARITY).
5 (BY SIMILARITY).
5 (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (BY SIMILARITY).

(BY SIMILARITY).

(BY SIMILARITY).

(BY SIMILARITY).

(UIA CARBONYL OXYGEN) (
   Pfam; PF01477; PLAT; 1.
Pfam; PF00882; Zn dep_PLPC; 1.
PRINTS; PR00479; PRPHPHLPASEC.
ProDom; PD003946; Zn dep_PLPC; 1.
PROSITE; PS50095; PLAT; 1.
PROSITE; PS00384; PROKAR ZN_DEPEND_PLPC; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 398;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CALCIUM 2 (BY SIMILARITY).
CALCIUM 2 (WIA CARBONYL OXY SIMILARITY).
CALCIUM 2 (WIA SIMILARITY).
CALCIUM 3 (BY SIMILARITY).
CALCIUM 3 (BY SIMILARITY).
CALCIUM 3 (BY SIMILARITY).
CALCIUM 1 (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 205 ADALKNSNPDSWSKEYCKGWAKQAKNLYYSHSTMKHTNEDWDYSAS-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7EFBEDD516CC7E58 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    13.5%; Score 205; DB 1; 25.5%; Pred. No. 5.4e-09;
                                                                                                                                                                                                                                                            BY SIMILARITY.
PHOSPHOLIPASE C.
PHOSPHOLIPASE C.
LINKER.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  51; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                      ZINC 1 (BY
ZINC 3 (BY
ZINC 3 (BY
ZINC 3 (BY
ZINC 1 AND
ZINC 1 (BY
ZINC 2 (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CALCIUM 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ----HALKNAQMGTAGCIY 265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                255 PVTGKRLMEAQRVTAGYIH 273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               45951 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity 25.5<sup>5</sup>
Matches 66; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                             29
84
96
111
128
139
139
139
139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  364
398 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EXG2 YEAST
P52911;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  METAL
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           251
                                                                                                                                                                                                                                                                                             CHAIN
DOMAIN
DOMAIN
METAL
METAL
METAL
                                                                                                                                                                                                                                        Signal.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      METAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CSSCEPTION
                SO PTITITION SO PPORTANTE SO PTITITION SO PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઢ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઠે
```

```
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its muse by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  272 AFDLLKKNQNSSDNTTFVIHDGFQGIGHWNLEL-----313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             112 TGTTYIPFAKHAKETGAKYPNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFTN 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            58 AIDIM----SRNTTIVNPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYDPD
                                                                                                                   STRAIN=S288c / AB972;
Murphy L., Harris D., Barrell B.G., Rajandream M.A., Walsh S.V.;
Submitted (MAR-1996) to the EMBL/GenBank/DDBJ databases.
-!- CATALYTIC ACTIVITY: Successive hydrolysis of beta-D-glucose units
from the non-reducing ends of 1,3-beta-D-glucans, releasing alpha-
                                                                                                                                                                                                                                                                                                            (Potential).
-!- SIMILARITY: Belongs to cellulase family A (family 5 of glycosylhydrolases).
                                                                                                                                                                                                                                                                               -i- SUBCELLULAR LOCATION: Attached to the membrane by a GPI-anchor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (POTENTIAL) (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GO; GO:0009277; C:cell wall (sensu Fungi); IDA.
GO; GO:0004318; F:glucan 1,3-beta-glucosidase activity; IDA.
Interpro; IPR001547; Cellulase; 1.
PROSITE; PS00659; GLYCOSYL_HYDROL_F5; 1.
Cell wall; Hydrolase; Glycosidase; Glycoprotein; Signal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6.7%; Score 102; DB 1; Length 562; 23.1%; Pred. No. 1.2; 11ve 23; Mismatches 77; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GLUCAN 1,3-BETA-GLUCOSIDASE
N-LINKED (GLCNAC. . .) (POTE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DONOR (BY SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 UCLEOPHILE (BY SIMILARITY)
5814509CC3D93F73 CRC64;
STRAIN=AB320;
Correa J., Vazquez de Aldana C., San Segundo P., del Rey
Submitted (JUN-1995) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (GLCNAC.
(GLCNAC.
(GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (GLCNAC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (GLCNAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      N-LINKED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PROTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; Z46870; CAA86950.1; -.
EMBL; Z70202; CAA94100.1; -.
EMBL; Z68229; CAA92719.1; -.
PIR; S55516; 555516.
HSSP; P07985; 1CEO.
GermOnline; 140753; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 63508 MW;
```

```
or send an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Salmonella typh:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN=IMSS-1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OMPF SALTI
Q56113;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAIN=CT18
                                                                                                                                                                                                                                                                                                                                                                                                              64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 231
                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                 datches
 ð
                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mood V. Gwilliam R., Rajandram M.A., Lyne M., Lyne R., Stewart A.,

Mood V., Gwilliam R., Rajandram M.A., Lyne M., Lyne R., Stewart A.,

Squuros J., Peat N., Hayles J., Baker S., Basham D., Bowman S.,

Brooks K., Brown D., Brown S., Chillingworth T., Churcher C.M.,

Collins M., Connor R., Cronin A., Davis P., Feltwell T., Fraser A.,

Collins M., Connor R., Cronin A., Davis P., Feltwell T., Fraser A.,

Gentles S., Goble A., Hamlin N., Harris D., Hidalgo J., Hodgson G.,

Holroyd S., Hornsby T., Howarth S., Huckle E.J., Hunt S., Jagels K.,

James K., Jones L., Jones M., Leather S., McCoanld S., McGean J.,

Mooney P., Moule S., Mungall K., Murphy L., Niblett D., Odell C.,

A Diver K., O'Neil S., Pearson D., Quail M.A., Rabbinowitsch E.,

A Skelton J., Simmonds M., Squares R., Steyens K.,

Skelton J., Simmonds M., Squares R., Squares S., Stevens K.,

Taylor K., Taylor R.G., Tivey A., Walsh S.V., Warren T., Whitehead S.,

Woodward J., Volckaert G., Aert R., Robben J., Grymonprez B.,

Weltjens I., Vanstreels E., Rieger M., Schaefer M., Mueller-Auer S.,

Borzym K., Langer I., Beck A., Lehrach H., Reinhardt R., Pohl T.M.,

Ber P., Zinmernann W., Wedler H., Wambutt R., Purnelle B.,

Locas M., Rochet M., Gaillardin C., Tallada V.A., Garzon A., Thode G.,

Boat R.R., Cruzado L., Jimenez S., Sanchez M., del Rey F., Benito J.,

Cerrutti L., Lowe T., McCombie W.R., Paulsen I., Potashkin J.,

A Dominguez A., Revuelta J.L., Moreno S., Armetrong J., Forsburg S.,

A The genome sequence of Schizosaccharomyces pombe.";

Nature 415:11-880(2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
-----HYFNLTGANYSSQDI-----LVDHH------HYEVFTD 340
                                 172 LSYPMGFHSKYENFV----DTIKNNY----IVSDSNGYWNWKGANPE--DWIEGAAVAAK 221
                                                           341 AQLAETQFARIENIINYGDSIHKELSFHPAVVGE-----WSGAITDCATWLNGVGVGAR 394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Katayama S., Dai H., Arellano M., Perez P., Toda T.; "Fission yeast alpha-glucan synthase Mokl localizes closely with actin and play a role essential for cell morphogenesis and protein kinase C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CATALYTIC ACTIVITY: UDP-glucose + {alpha-D-glucosyl-(1,3)}(N)
                                                                                                                          395 YDGSYYNTTLFTINDKPVGTCISQNSLADWTQDYRDRV-RQFIEAQLAT 442
                                                                                                     222 QD--YPGVVNDTTKDWFVKAAVSQEYADKWRAEVTPVTGKRLMEAQRVT 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              UDF + {aipna-D-giucosy1-(1,3)}(N+1).
SIMILARITY: Belongs to the glycosyltransferase family 1.
                                                                                                                                                                                                                          MOKD SCHPO STANDARD; PRT; 2358 AA.
09Y719; 094638;
16-OCT-2001 (Rel. 40, Last sequence update)
16-OCT-2001 (Rel. 41, Last annotation update)
28-FRB-2003 (Rel. 41, Last annotation update)
Cell wall alpha-1,3-glucan synthase mokl3 (EC 2.4.1.183).
MOK13 OR SPBC16D10.05.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Submitted (OCT-1998) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                     Schizosaccharomyces pombe (Fission yeast).
Eukaryota, Fungi, Ascomycota, Schizosaccharomycetes,
Schizosaccharomycetales, Schizosaccharomycetaceae,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1,3) } (N+1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAIN=972;
MEDLINE=21848401; Pubmed=11859360;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        + {alpha-D-glucosyl-
                                                                                                                                                                                                                                                                                                                                                                                                            Schizosaccharomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=4896
                                                                                                                                                                                                                              ઠે
                                                             셤
                                                                                                  ò
```

```
56 NRAIDIMSRNTTIVNPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYDPDTGTT 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    116 YIPPAKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGD---VNQPMHAANFTNL 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        94 -----ETG---FRNGGDIIGLKÖSLDYLEIMGIKVIYIAGTPFLNQPWGADQYSPL 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              142 DYTILDHHSGTIAQWRDTIEEIHRRGFYLVLDLTISTLGDLIGFRKYLNSTTPFSLFEHE 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ---KDNYIVSDSNGYWNW-----KGANPEDWIE-GAAVAAKQDYPGVVND----- 230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                202 AVWKSNVIYPD----WNFTNKYDPKCELPRFWGEDGAPVVI--DYVGCYDSDFDQYGDTE 255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ---TTKDW---FVKAAVSQEYADKWRAEVT--------PVTGKRLMEAQRVTAG 270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                256 AFGTHDDWERQLSKFASVQDRLREWRPSVSEKLKHFACMIIAMLDVDGFRIDKATQITVD 315
                                                                                                                                                                                                                                                                                                                                                                                                                                                     3 KKVLALAAMVALAAPVQSVVFAQ-----TNNSESPAPILRWSAEDKHNEGINSHLWIV 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE=21534947; PubMed=11677608;
Parkhill J., Dougan G., James K.D., Thomson N.R., Pickard D., Wain J., Churcher C., Wungall K.L., Bentley S.D., Holden M.T.G., Sebaihia M., Baker S., Basham D., Brooke K., Chillingworth T., Connerton P., Cronin A., Davies R.M., Dowd L., White N., Parrar J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KNILVLNLILSIPRLVFTAKYDERESLWNLNQNQSATDPLDYWGKWENHQYHPSPDDWQV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15-DEC-1998 (Rel. 37, Created)
28-FEB-2003 (Rel. 41, Last sequence update)
10-OCT-2003 (Rel. 42, Last annotation update)
Outer membrane protein F precursor (Porin ompF) (Outer membrane
                                                                                                                                                                                                                                                                                                                                                                                Indels 140;
                                                                                                                                                                  Cell wall; Transferase; Glycosyltransferase.
CONFLICT 120 120 V -> VRRVMLLCSLTNKV (IN REF. 1)
SEQUENCE 2358 AA; 269192 MW; A175577C9D8AD731 CRC64;
                                                                                                                                                                                                                                                                                                               DB 1; Length 2358;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             173 SYPM-------GFHSKYENFVDTI------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fernandez-Mora M., Calva E.;
Submitted (JUL-1996) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                           6.7%; Score 102; DB 1; L. B. 4%; Pred. No. 6.9; ve 43; Mismatches 115;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   363 AA
                                                                                                        cat.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          protein S3).
OMPF OR OMPS3 OR STY1002 OR T1935.
                                                             GenedB SPombe; SPBC16D10.05; -. InterPro; IPR006047; Alpha amyl Pfam; PF00128; alpha-amylase; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Enterobacteriaceae; Salmonella.
NCBI_TaxID=601;
                                                                                                                                                                                                                                                                                                                                            18.48;
                                                                                                                                                                                                                                                                                                                                                                                67; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
PIR; T39569; T39569.
PIR; T43432; T43432.
                                                                                                                                                                                                                                                                                                                                            Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      316 FLASW 320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 271 YIHLW 275
```

```
RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ++
  8444444
                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                          유
                                                                                                                                                                                                            g
                                                                                                                       ઠ
                                                                                                                                                          ò
                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                 è
                                                                                                                                                                                                                                                                     ઠ
                                                                                                                                                                                                                      This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                        SUBUNIT: Homotrimer (By similarity).
SUBURIT: Homotrimer (By similarity).
SUBCELLULAR LOCATION: Integral membrane protein. Outer membrane.
SIMILARITY: Belongs to the Gram-negative porin family.
Krogh A., Larsen T.S., Leather S., Moule S., O'Gaora P., Jagels K., Krogh A., Larsen T.S., Leather S., Moule S., O'Gaora P., Parry C., Quail M.A., Rutherford K., Simmonds M., Skelton J., Stevens K., Whitehead S., Barrell B.G.;
"Complete genome sequence of a multiple drug resistant Salmonella enterica serovar Typhi CT18.";
Nature 413:848-852(2001).
                                                                                                                                                                                                                                                                                                                            HSSP; P02931; IGFN.
InterPro; IPR003229; OMP 2.
InterPro; IPR003229; OMP 2.
InterPro; IPR0013229; OMP 2.
Pfam; PF00267; Gram-ve porIns; 1.
PRINTS; PR00182; ECCLNEIPORIN.
PROSITE; PS00576; GRAM NEC PORIN; 1.
PROSITE; PS00576; GRAM NEC PORIN; 1.
Outer membrane; Transmembrane; Porin; Phage recognition; Signal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BY SIMILARITY.
PERIPLASMIC (BY SIMILARITY).
BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
PERIPLASMIC (BY SIMILARITY).
BY SIMILARITY.
EXTRACELLULAR (BY SIMILARITY).
BY SIMILARITY.
EXTRACELLULARR (BY SIMILARITY).
BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BY SIMILARITY.
PERIPLASMIC (BY SIMILARITY).
BY SIMILARITY.
EXTRACELLULAR (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PERIPLASMIC (BY SIMILARITY).
BY SIMILARITY.
EXTRACELLULAR (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                  BY SIMILARITY.
EXTRACELLULAR (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BY SIMILARITY.
EXTRACELLULAR (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BY SIMILARITY.
PERIPLASMIC (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BY SIMILARITY.
PERIPLASMIC (BY SIMILARITY).
BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                    OUTER MEMBRANE PROTEIN F.
BY SIMILARITY.
PERIPLASMIC (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                              SIMILARITY
                                                                                                                                                                                                                                                                                                 EMBL; X89757; CAA61905.1; -.
EMBL; AL627268; CAD05399.1; -.
EMBL; AE016840; AA069550.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                              Complete proteome.
                                                                                                                                                                              similarity)
                                                                                                                                                                                                                                                                                                                                                                                                                              TRANSMEM
DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RANGMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                           DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DOMAIN
```

```
143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        144 QOAFFYL--GLS--LHYLGDVNOPMHAANFTN---LSYPM------GFHSKYENFVDTI 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  53 NADQTYAQIGFKGETQINTDLTG-FGQWEYRTKADRAEGEQQNSNLVRLAFAGLKYAEVG 111
                                                                                                                                                                                                                                                                                                                                            22
                                                                                                                                                                                                                                                                                                                                                                       2 MKRKILAAVIPALLAAATANA--AEIYNKDG------NKLDLYGKAVGRHVWTTTGDSK 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
SERALIBLET2 / SGSC1412 / ATCC 700720;
MEDLINE_21534949 bubMed=11677609;
MCDLINE=21534949 bubMed=11677609;
MCDLINE=21534949 B., Sanderson K.E., Spieth J., Clifton S.W., Latreille P., Courtney L., Porwollik S., Ali J., Dante M., Du P., Hou S., Layman D., Leonard S., Mayuen C., Scott K., Holmes A., Grewal N., Mulvaney E., Ryan E., Sun H., Plorea L., Miller W., Stoneking T., Nhan M., Materston R., Wilson R.K.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Nature 413:852-856(2001).
-I- FUNCTION: OMPE IS A PORIN THAT FORMS PASSIVE DIFFUSION PORES WHICH ALLOW SMALL MOLECULAR WEIGHT HYDROPHILIC MATERIALS ACROSS THE OUTER MEMBRANE. IT IS ALSO RECEPTOR FOR THE BACTERIOPHAGE T2 (By
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SADYENPY - - - YDNSTY - - - - ASHFYDPDTGTTY I PFAKHAKETGAKY FNLAGQAYQNQDM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         164 ---FFGLVDGLSFGIQYQGK-NQDNHSINSQNGDGVGYTMAYEFDGFGVTAAYSNSKRT-
                                                                                                                                                                                                                                                                                                                                       1 MKKKVILALAAMVALAAPVOSVVFAQTNNSESPAPILRWSAEDKHNEGINSHLWIV----
                                                                                                                                                                                                                                                                                        81; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Complete genome sequence of Salmonella enterica serovar Typhimurium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SUBUNIT: Homotrimer (By similarity).
SUBCELLULAR LOCATION: Integral membrane protein. Outer membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-OCT-1994 (Rel. 30, Created)
28-FBB-2003 (Rel. 41, Last sequence update)
10-OCT-2003 (Rel. 42, Last annotation update)
04ctr membrane protein F precursor (Porin ompF) (Outer membrane protein IA) (Outer membrane protein IB) (Outer membrane protein B)
OMPF OR STM0999.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bacteria, Proteobacteria, Gammaproteobacteria, Enterobacteriales;
Enterobacteriaceae, Salmonella.
                                                                                                                                                                                                                                       6.4%; Score 97.5; DB 1; Length 363;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      219 -NDQQDRDGN-----GDRAESWAVGAKYDANNVYLAAVYAETRN 256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (By similarity).
                        BY SIMILARITY.
PERIPLASMIC (BY SIMILARITY).
BY SIMILARITY.
EXTRACELLULAR (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  190 KNNYIVSDSNGYWNWKGANPEDWIEGAAVAAKQDYPGVVNDTTKD 234
EXTRACELLULAR (BY SIMILARITY)
                                                                                                                                                                                                                                                             ; Pred. No. 1.5;
28; Mismatches 109; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Venegas A., Gomez I., Bruce E., Martinez M.;
Submitted (MAR-1994) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                     D -> G (IN REF. 1).
F5059B37EA516859 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 56 ---NRAIDIMSRNTIIVNPNETALLNEW----RADLENG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      363 AA
                                                                                                                             BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                      40106 MW;
                                                                                                                                                                                                                                                                23.5%;
                                                                                                                                                                                                                                                                Best Local Similarity 23.5
Matches 67; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
  312
324
326
336
353
363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Salmonella typhimurium
                                                                                                                                                                                      363 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     similarity).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NCBI_TaxID=602;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN=LT2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    OMPF SALTY
P37432;
                                                      DOMAIN
TRANSMEM
DOMAIN
     DOMAIN
TRANSMEM
                                                                                                                                TRANSMEM
                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                      SEQUENCE
```

```
SADYENPY---YDNSTY---ASHFYDPDTGTTYIPFAKHAKETGAKYFNLAGQAYQNQDM 143
                                                                                                                                                                                          Last sequence update)
Last annotation update)
                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             entities requires a license agreement (
or send an email to license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; AE000172; AAC73775.1; -.
EMBL; D90707; BAA35329.1; ALT_INIT.
PIR; H64802; H64802.
                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE=97061202; PubMed=8905232;
                                                                                                                                                                                (Rel. 36, Created)
(Rel. 36, Last seq
                                                                                                                                                                                                               Hypothetical protein ybfM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                         (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                   NCBI_TaxID=562;
                                                                                                                                                                                                                           YBFM OR B0681
                                                                                                                                                                               15-JUL-1998 (
15-JUL-1998 (
16-OCT-2001 (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local Sim-
                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN=K12;
                                                                                                                                                           ECOLI
  9
                     112
                                                                                   190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                    P75733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                    셤
                                          ઠે
                                                          g
                                                                                  ઠે
                                                                                                      셤
                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤.
          This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----IY 89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MKKKVLALAAMVALAAPVQSVVFAQTNNSESPAPILRWSAEDKHNEGINSHLWIV----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                              Outer membrane; Transmembrane; Porin; Phage recognition; Signal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               81;
                                                                                                                                                                                                                                                                                                                                                             BY SIMILARITY.

EXTRACELLULAR (BY SIMILARITY).

BY SIMILARITY.

BY SIMILARITY.

BY SIMILARITY.

BY SIMILARITY.

BY SIMILARITY.

PERIPLASMIC (BY SIMILARITY).

BY SIMILARITY.

EXTRACELLULAR (BY SIMILARITY).

BY SIMILARITY.

EXTRACELLULAR (BY SIMILARITY).

BY SIMILARITY.

BY SIMILARITY.

PERIPLASMIC (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 1; Length 363;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BY SIMILARITY.
EXTRACELLULAR (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                     BY SIMILARITY.
EXTRACELLULAR (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BY SIMILARITY.
EXTRACELLULAR (BY SIMILARITY)
                                                                                                                                                                                                                                                                                     EXTRACELLULAR (BY SIMILARITY)
BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BY SIMILARITY.
EXTRACELLULAR (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ouery Match 6.4%; Score 97.5; DB 1; Length 36 Best Local Similarity 23.5%; Pred. No. 1.5; Matches 67; Conservative 28; Mismatches 109; Indels
                                                                                                                                                                                                                                                                                                                                            BY SIMILARITY.
PERIPLASMIC (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BY SIMILARITY.
PERIPLASMIC (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PERIPLASMIC (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ---NRAIDIMSRNTTIVNPNETALLNEW----RADLENG-----
                                                                                                                                                                                                                                 BY SIMILARITY.

OUTER MEMBRANE PROTEIN F.
BY SIMILARITY.
BY SIMILARITY.
BY SIMILARITY.
                                                                                                                                                                                                                                                                                                             PERIPLASMIC (BY SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     F6069B34E9516859 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -> A (IN REF. 1).
-> V (IN REF. 1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BY SIMILARITY
                                                                                                                                                                  Pfam; PF00267; Gram-ve porins; 1.
PRINTS; PR00182; ECCLNEIPORIN.
ProDom; PD000808; OMP 2; 1.
PROSITE; PS00576; GRAM_NEG_PORIN; 1.
                                                                                                                                   StyGene; SG10264; ompF.
InterPro; IPR003229; OMP 2.
InterPro; IPR001702; Porin Gram-ve.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     40048 MW;
                                                                                            EMBL; 231594; CAA83471.1; -.
                                                                                                      ; AE008743; AAL19933.1;
S43159; S43159.
                                                                                                                            HSSP; P02931; 1GFN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           360 :
363 AA;
                                                                                                                                                                                                                        Complete proteome.
                                                                                                                                                                                                                                                       TRANSMEM
DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                       DOMAIN
TRANSMEM
DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                               TRANSMEM
DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CONFLICT
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                  DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                        DOMAIN
TRANSMEM
DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DOMAIN
TRANSMEM
DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                   DOMAIN
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                          FRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TRANSMEM
                                                                                                                                                                                                                                                                                                                                                       DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DOMAIN
                                                                                                                                                                                                                                               CHAIN
ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
```

This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation-the Buropean Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/ -GFHSKYENFVDTI 189 164 ---FFGLVDGLSFGIQYQGK-NQDNHSINSQNGDGVGYTMAYEFDGFGVTAAYSNSKRT- 218 47 KKKVILALA----AMVALAAPVQSVVFAQTNNSESPAPILRWSAE-----DKHNEG Oshima T., Aiba H., Baba T., Fujita K., Hayashi K., Honjo A., Ikemoto K., Inada T., Itoh T., Kajihara M., Kanai K., Kashimoto K., Kinara S., Kitagawa M., Makino K., Masuda S., Miki T., Mizobuchi K., Mori H., Motomura K., Nakamura Y., Nashimoto H., Nishio Y., Saito N., Sampai G., Seki Y., Tagami H., Takemoto K., Wada C., Yamamoto Y., Yano M., Horiuchi T.; 94; Gaps STRAIN=KI2 / MG1655;
MEDLINE=97426617; PubMed=9278503;
Blattner F.R., Plunkett G. III, Bloch C.A., Perna N.T., Burland V.,
Riley M., Collado-Vides J., Glasner J.D., Rode C.K., Mayhew G.F.,
Gregor J., Davis N.W., Kirkpatrick H.A., Goeden M.A., Rose D.J.,
Mau B., Shao Y.; Escherichia coli. Bacteria; Proteobacteria; Gammaproteobacteria; Enterobacteriales; Enterobacteriaceae; Escherichia. "A 718-kb DNA sequence of the Escherichia coli K-12 genome corresponding to the 12.7-28.0 min region on the linkage map."; DNA Res. 3:137-155(1996). 219 -NDQQDRDGN-----GDRAESWAVGAKYDANNVYLAAVYAETRN 256 6.4%; Score 97; DB 1; Length 468; 22.0%; Pred. No. 2.3; ive 46; Mismatches 136; Indels "The complete genome sequence of Escherichia coli K-12."; Science 277:1453-1474(1997). 144 QQAFFYL--GLS--LHYLGDVNQPMHAANFTN---LSYPM-----KNNY I VSDSNGYWNWKGANPEDWI EGAAVAAKQDY PGVVNDTTKD Ecodene, EG13659; ybfM. Hypothetical protein, Complete proteome. SEQUENCE 468 AA; 52780 MW; 954B5A778AE1C2E4 CRC64,

```
a
셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its way non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@lsb-sib.ch).
                                                                                                                                                                                                                                                       231 KNNFVLEAAFGQAEGYIDQYFAKASYKPDIAGSPLTTSYQFYGTRDKVDDRSVNDLYDGT 290
                                                                                                                                                 LAGQ----AYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFINLSYPMGFHSKYENFVDTI 189
                                                 LSHSTWNANLDFQSGYAADMFGLDIAAFTAIEMAENGDSSHPNBIAFSKSNKAYDEDWSG 126
                                                                                                         DLENGI--YSADYENPYYDNSTYASHFYDPDTGTT-----YIPFAKHAKETGAKY-FN 132
                                                                                                                                                                                                                                                                                                                                   KNNYIV----SDSNGYMN--WKGANPEDWIEGAAVAAKQDYPGV------VNDTTKD- 234
INSHLWIVNR------AIDI------MSRNTTIVNPNETALL-----NEWRA 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  291 AWLQALIFGYRAADVVDLRLEGIWVKADGQQGYFLQRMIPTYASSNGRLDIWWD 344
                                                                                                                                                                                                                                                                                                                                                                                                                                                  235 -WFVKAAVSQEYAD--KWRAEVTPV--TGKRLMEAQRVTAGY-----IHLWFD 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -!- SUBCELLULAR LOCATION: Cytoplasmic. When bound to oxysterols it translocate to the periphery of Golgi membranes.
-!- SIMILARITY: Balongs to the OSBP family.
-!- SIMILARITY: Contains 2 ANK repeats.
-!- SIMILARITY: Contains 1 PH domain.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Levine T.P., Munro S., hold of the property of the property of the protein of the protein of the protein, to both the Golgi and the nucleus-vacuole junction."; Mol. Biol. Cell 12:1633-1644(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                09H2 YEAST STANDARD; PRT; 1283 AA.
014451, P88991,
28-PEB-2003 (Rel. 41, Created)
28-PEB-2003 (Rel. 41, Last sequence update)
28-PEB-2003 (Rel. 41, Last annotation update)
CASP-ED-2003 (Rel. 41, Last annotation update)
CASP-ED-10-inding protein homolog 2.
0SH2 OR YDL019C OR D2845.
Saccharomyces osrevisiae (Baker's yeast).
Bukaryota, Fungi, Ascomycota, Saccharomycetes; Saccharomycetales; Saccharomycetales.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Beh C.T., Cool L., Phillips J., Rine J.; "Overlapping functions of the yeast oxysterol-binding protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Urrestarszu L.A., Andre B., Vissers S.;
Submitted (JUL-1996) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUBCELLULAR LOCATION.
MEDLINE=21301806; PubMed=11408574;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE=21135676; PubMed=11238399;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; Z74066; CAA98577.1; --
EMBL; Z74067; CAA98578.1; --
EMBL; Z48432; CAA88340.1; --
EMBL; S25500; S25500.
GermOnline; 140261; --
SGD; S0002177; OSH2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Genetics 157:1117-1140(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENETIC ANALYSIS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI TaxID=4932;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAIN=S288C;
     48
                                                       67
                                                                                                              83
                                                                                                                                                                      127
                                                                                                                                                                                                                             133
                                                                                                                                                                                                                                                                                                                                            190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DE COSTA NAME OF THE STATE OF T
                                                                                                                                                          요
                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                           È
                                                                                                                                                                                                                                                                                                                                                                                              윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                         8
                                                                                                                                                                                                                          ò
```

```
1002 -----PPISATWIE-SPRWDFWG--ESFVDTKFNGRSFNVKHLGLWHIKLRPNDNEKEB 1052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        944 TPBDSTLRTLYVAAFTASSYASTTKRV-AKPFNPLLGETFBYSRPDKQYRFFTEQVSHH- 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              106 HPYDPDTGTTYI-----PPAKHAKETGAKYFN-LAGQA--YQNQDMQQAFFYLGLSLHY 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         52 ---LWIVNRAI--DIMSRNTTIVNPNE-TALLNEWRADLENGIYSADYENPYYDNSTYAS 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       157 LGDVNOPMHAANFTNLSYPMGFHSKYENFVDTIKONYIVSDSN-GYWN------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 MKKKVLALAAMVALAAPVQSVVPAQTNNSESPAPILRWSAEDKHNEGINSH------
                                                                              R InterPro; IPR00110, AMK.
R InterPro; IPR001649; Oxysterol_BP.
R InterPro; IPR001649; PH.
R R InterPro; IPR00133 ank; PH.
R Pfam; PF001237; Oxysterol_BP; 1.
R Pfam; PF001237; Oxysterol_BP; 1.
R Pfam; PF00169; PH; 1.
R SMART; SM00249; ANK; 2.
R SMART; SM00233; PH; 1.
R PROSITE; PS50008; ANK REPEAT; 1.
R PROSITE; PS500097; ANK REPEAT; 1.
R PROSITE; PS50003; PH_DOWAIN; 1.
R PROSITE; PS50003; PH_DOWAIN; 1.
R RIPERAT 206 235 ANK 1.
T REPEAT 206 235 ANK 2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
6.3%; Score 95.5; DB 1; Length 1283;
Best Local Similarity 25.9%; Pred. No. 11;
Matches 72; Conservative 31; Mismatches 104; Indels 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1283 AA; 145795 MW; D521957460E7F7C3 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1053 LYTWK--KPNNTVIGILIGNPQVDNHGEVNVVNHTTGD 1088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            204 ---WKGANPEDWIEGAAVAAKQ-DYPG---VVNDTTKD 234
GO; GO:0005935; C:bud neck; IDA.
GO; GO:0005886; C:plasma membrane; IDA.
GO; GO:0006694; P:steroid biosynthesis; IGI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DOMAIN
```

Search completed: July 27, 2004, 14:46:31 Job time : 15 secs

```
11-APR-2000; 2000FR-00004629
                                                                                                                                                                                                                                                                                                               Listeria monocytogenes
                                                                                                                                                                                                                                                                                                                                                                                                 (INSP ) INST PASTEUR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 2002-010914/01.
                                                                                                                                                                                                                                                                                                                              WO200177335-A2
                                                                                                                                                                                                                                                     05-FEB-2002
                                                                                                                                                                                                                                                                                                                                                18-OCT-2001.
                                                                                                                                                                                                                                     ABB47676;
                                                                                                                                                                                                                     Aar52563 Clostridi
Abu01020 S. pneumo
Abu45746 Protein e
Abu68020 Novel hum
Aag60220 Plastidia
Abu68928 B. ditero
Abu6898 B. latero
Abr52701 Protein B
Aag52327 Arabidops
Aag55009 Arabidops
Aag55009 Arabidops
Aag5036 Arabidops
Aag61095 Broicida
Aay6159 S. pneumo
Aay6159 S. pneumo
Aay6159 Arabidops
Aag10305 Arabidops
Aag10305 Arabidops
Aag10305 Arabidops
Aag10305 Arabidops
Aag50139 Arabidops
Aag50139 Arabidops
Aag50139 Arabidops
Aag50139 Arabidops
Aag50139 Arabidops
Aag50138 Arabidops
                                                                                                                                                                                                                                                                                                                                                                                                 Abb47676 Listeria
Aar52563 Clostridi
                                               // Search time 54 Seconds
(without alignments)
1475.526 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                      Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                 1 MKKKVLALAAMVALAAPVQS.......EAQRVTAGYIHLWFDTYVNR 282
                                                                                                                                                           1586107
5.1.6
Compugen Ltd.
                                                                                                                                                         Total number of hits satisfying chosen parameters:
                                                                                                                                           1586107 seqs, 282547505 residues
                                                                                                                                                                                                                                                                                                                                                        SUMMARIES
GenCore version
Copyright (c) 1993 - 2004
                                                                                                                                                                                                    Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                 OM protein - protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                        AAR52563
ABU01020
ABU01020
ABU08390
AAG80320
AAG8028
ABU08989
ABU08989
AAG52327
AAG52326
AAG52326
AAG5330
AAG5330
AAG5330
AAG5330
AAG5330
AAG5330
AAG5330
AAG5330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAG50139
AAG10305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAG24898
AAG50138
                                                July 27, 2004, 14:31:12
                                                                                                                  BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                            geneseqp1980s:*
geneseqp1990s:*
geneseqp2000s:*
geneseqp2001s:*
geneseqp2002s:*
geneseqp2003bs:*
geneseqp2003bs:*
                                                                                                                                                                                                                                     Geneseq 29Jan04:*
                                                                                                                                                                          length: 0
length: 2000000000
                                                                                 PCT-US03-12556-2
1522
                                                                                                                                                                                                                                                                                                                                                                                 Length DB
                                                                                                                                                                                                                                                                                                                                                                                                                                          414
836
836
871
1192
1192
305
305
192
288
288
294
294
323
323
323
                                                                                                                                                                                                                                                                                                                                                                       Owery
Match
                                                                                                                                                                                                                                              seq
sed
                                                                                          Perfect score:
                                                                                                                  Scoring table:
                                                                                                                                                                           Minimum DB
Maximum DB
                                                                                                   Sequence:
                                                                                                                                          Searched:
                                                                                                                                                                                                                                     Database
                                                  Run on:
                                                                                                                                                                                                                                                                                                                                                                                 Š.
                                                                                                                                                                                                                                                                                                                                                                                                                          Result
```

Aag10304 Arabidops Aaw93146 C. thermo		Abg30886 H. pylori		Abm72521 Staphyloc	Aab48342 S. pneumo	Aay81710 Streptoco	Aaw34599 Amaranthu	Aaw85564 Seed stor	Aaw83352 Amaranthu	Abg01338 Novel hum	Abm67131 Photorhab	Aag05010 Arabidops		Aag50135 Arabidops	Aag05829 Arabidops	Abp65417 Bifidobac	Abu19765 Protein e	Abg60631 Human pot
AAG10304 AAW93146	AAY70519	ABG30886	ABU27268	ABM72521	AAB48342	AAY81710	AAW34599	AAW85564	AAW83352	ABG01338	ABM67131	AAG05010	AAG52328	AAG50135	AAG05829	ABP65417	ABU19765	ABG60631
ო ი	m	w	9	9	4	m	~	~	~	4	9	m	m	ო	m	ß	ø	S
346 399	837	479	787	370	664	2120	304	304	304	1984	238	165	165	296	296	449	584	1320
6.5 6.5	6.2	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	9.0	6.0	5.9	5.9	5.9	5.9	5.9	5.9	5.9
9 4 4	94	93.5	93.5	93	93	93	92.5	92.5	92.5	92	91.5	90.5	90.5	90.5	90.5	90.5	90.5	90.5
26 27	28	29	30	31	32	33	34	.35	36	37	38	39	40	41	42	43	44	45

ALIGNMENTS

Listeria monocytogenes protein #380 ABB47676 standard; protein; 289 AA

Antibacterial; gene therapy; vaccine; biosynthesis; biodegradation; vitamin B12; bacterial infection; disease.

11-APR-2001; 2001WO-FR001118.

Dehoux P; Cossart P; Buchrieser C, Frangeul L, Couve E, Rusniok C, Fsihi H, Dehoux P, Dussurget O, Chetouani F, Nedjari H, Glaser P, Kunst F, Cossart I Daniels J, Goebel W, Kreft J, Kuhn M, Ng E, Vazquez-Boland JA; Dominguez-Bernal G, Garrido-Garcia P, Tierrez-Martinez A, Amend A; Chakraborty T, Domann E, Hain T, Berche P, Charbit A, Durant L; Perez-Diaz J, Baquero F, Garcia Del Portillo F, Gomez-Lopez N, Maduenio E, De Pablos B, Wehland J, Kaerst U, Entian K, Hauf J; Rose M, Voss H; Genomic sequence for Listeria monocytogenes, useful e.g. for treatment and prevention of Listeria and related bacterial infections, and related polypeptides.

Claim 6; SEQ ID NO 381; 192pp; French.

of L. The present invention relates to the genome sequence of Listeria monocytogenes EGD-e (see ABA03041). The genome sequence and fragments it are useful for selecting probes and primers for detecting genes in monocytogenes and related organisms, and for studying genes in polymorphisms and other genomes. The present sequence is a protein encoded by the genome sequence of the present invention. Proteins

```
Masignani V,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         03-OCT-2002.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           23-OCT-2003
11-FEB-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ABU01020;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ABU01020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 THE SECOND SECON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
##X8X0000X8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                  용
                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                              ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         183
             antibodies, identification of L. monocytogenes and related organisms, and for blosynthesis and biodegradation, especially biosynthesis of Vitamin Sall. The genome sequence and proteins encoded by it are also useful for selecting compounds that regulate gene expression and cell replication and modulate L. monocytogenes-related diseases. In addition, the genome sequence and proteins encoded by it are useful in pharmaccutical and vaccines compositions for the treatment or prevention of infections by L. monocytogenes and related organisms. Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SHIMIVNRAIDIMSRNTIIVNPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYD 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  170 TNLSYPMGFHSKYENFVDTIKNNYIVSDSNGYWNWKGANPEDWIEGAAVAAKQDYPGVVN 229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              49
                                                                                                                                                                                                                                                                                                                                                                                                                                                   63
                                                                                                                                                                                                                                                                                                                                                                                                       2 KKKVLALAAMVA-LAAPVQSVV----FAQT----NNSESPAP-ILRWSAEDKHNBGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                 110 PDTGTTYIPFAKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                New peptides from C-terminus of Clostridium perfringens alpha toxin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Alpha-toxin; AT; gas gangrene; vaccine; bacterium; Cpa; conjugate; phospholipase C; sphingomyelin-hydrolysis.
  expressed from the genome sequence are useful for raising specific
                                                                                                                                                                                                                                                                                                                                                                 18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      230 DTIKDWFVKAAVSQEYADKWRAEVTPVTGKRLMEAQRVTAGYIHLW 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 289;
                                                                                                                                                                                                                                                                                                                    / Match 33.6%; Score 511; DB 5; Length 28; Local Similarity 37.1%; Pred. No. 5.7e-39; nes 106; Conservative 55; Mismatches 107; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Clostridium perfringens alpha-toxin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAR52563 standard; protein; 370 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       92GB-00010717.
92GB-00015655.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 93WO-GB001039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (MINA ) UK SEC FOR DEPENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Williamson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Clostridium perfringens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (revised)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 1993-386575/48.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N-PSDB; AAQ62305.
                                                                                                                                                                                                                                                                                Sequence 289 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO9323543-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20-MAY-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20-MAY-1992;
23-JUL-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25-MAR-2003
30-MAY-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ritball RW,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        25-NOV-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAR52563;
                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
      8888888888888888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

```
10,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  102 TYASHFYDPDTGTTYIP-----FAKHAKETG----AKYFNLAGQAYQNQDMQQAFFYLGL 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   182 NKDFNAWS----KEYARGFAKTGKSIY------YSHASMSHSWDDWDYAAKVT-- 224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      46 EGINSHLWIVNRAIDIMSRNTTIVNPNET----ALLNEWRADLENGIYSADYENPYYDNS 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     64 LYQDHFWDPDTDNNFSKDNSWYLAYSIPDTGESQIRKFSALARYEWQRGNYKQATFYLGE 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    124 AMHYRGDIDTPYHPANVT--AVDSAGHVKFETFAEERKEQYKINTAGCKTNEAFYTDILK 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bacterial meningitis; pneumonia; sepsis; otitis media; ear infection; antinflammatory; antibacterial; immunostimulant; auditory; respiratory;
                                                                                                                                   Peptides, or conjugates, have the amino acid sequence of the epitopes of C. perfringens alpha-toxin (AT) from amino acids 261-300 but lack hospholiphises C and/or sphingomyelin-hydrolysing activity. The peptides induce a protective immune response against AT when admin. to human or animals. (Updated on 25-MAR-2003 to correct PN field.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            New proteins and nucleic acid molecules from Streptococcus pneumoniae, useful as medicaments for treating or preventing a disease or infection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                153 SLHYLGDVNQPMHAANFTNLSYPMGFHSKYENFVDTIKNNYIVSDSNGYWN-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     204 -----WKGANPEDWIEGAAVAAKQDYPGVVNDTIKDWFVKAAVSQEYAD-KWRAEVIPV
                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6 DGTGTHAMIVTQGVSILENDLSKNRPESVRKNLEILKENMHELQLGSTYPDYDKNAYD
useful in protective vaccines against gas gangrene, also derived antibodies for passive immunisation.
                                                                                                                                                                                                                                                                                                                                                                                                                                54,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S. pneumoniae type 4 strain protein from coding region #590.
                                                                                                                                                                                                                                                                                                                                                                    Length 370;
                                                                                                                                                                                                                                                                                                                                                                                                                                95; Indela
                                                                                                                                                                                                                                                                                                                                                                       14.5%; Score 220; DB 2; 26.5%; Pred. No. 1.1e-11; ive 40; Mismatches 95;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Streptococcus pneumoniae; type 4 strain.
                                                                                         Disclosure; Page 16-17; 29pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ΰ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABU01020 standard; protein; 2140 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Fraser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          257 TGKRLMEAQRVTAGYIH 273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----LANSQKGTAGYIY 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         27-MAR-2002; 2002WO-IB002163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  27-MAR-2001; 2001GB-00007658
                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 26.5.,
Best Local Similarity 26.5.,
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (revised)
(first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Tettelin H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene therapy; vaccine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (GENO-) INST GENOMIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 2003-040579/03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (CHIR-) CHIRON SPA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N-PSDB; ABX06302
                                                                                                                                                                                                                                                                                                                       Sequence 370 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO200277021-A2
```

19-JUN-2003 (first entry)

```
The invention relates to a protein comprising or having at least 50% identify to any of the 2469 amino acid sequences, identified in the specification (available on a computer readable format), or its fragment, expressed from 2469 of 2489 identified DNA coding regions from the expressed from 2469 of 2489 identified DNA coding regions from the Streptococcus pneumoniae type 4 strain genomic sequence appearing as ABS56454. Also included are an antibody which binds one of the proteins, treating a patient by administering the protein, DNA or antibody (in a composition), a kit comprising first and second primers, which are the nucleic acid cited above or fragments between nuclectides 8-100 of a sequence not defined in the specification, for amplifying a target sequence the first primer is substantially complementary to the target sequence and where the parts of the primers having substantially complementary to the complement of substantial complementarity define the termin of the target sequence to be amplified, assay comprising contacting a test compound with the protein, and determining whether the test compound binds to the protein protein and a Streptococcus pneumoniae bacterium, where one or more genes encoding the proteins has been rendered inactive. The proteins, nucleic acid molecules, antibody and compositions are useful as medicaments for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         treating or preventing a disease or infection due to streptococcus bacteria, particularly S. pneumoniae, such as pneumonia, sepsis, otitis media or ear infection. They are also useful in developing vaccines, diagnostics and antibiotics. The methods are useful for identifying immunodominant proteins. The present sequence is one of the 2469 proteins expressed by the identified coding regions from the genomic sequence. Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at fig.wipo.int/pub/published_pct_sequences. (Updated on 23-OCT-2003 to
streptococcus bacteria, such as pneumonia, sepsis, otitis media or
                                                                                          Claim 1; SEQ ID NO 1180; 56pp; English
```

Sequence 2140 AA;

```
97 YYDNSTYASHFYDPDTGTTYIPFAKHAKETGAKY----FNLAGQAYQ----NQD---- 142
                                                                                                                                                                                                                                              -----MQQAFFYLGL--SLHYLGDVNQPMHAANF-----TNLSYPMGF 178
                                                                                                                                                                                                                                                                                                        HSKYENFVDTIK------NNYIVSD----SNGYWNWKGANPEDWIEGAAVAA 220
                                                                                                9
                                                                     1 MKKKV---LALAAMVALAAPVQSVVFAQTNNSESPAPI--LRWSAEDKH-NEGINSHL-- 52
                                                                                                                           ------WIVNRAIDIMSRNTTIVN--PNETALLNEWRADLENGIYSADY-----ENP- 96
                                                                                                                                                                                                                                                                                                                        : | : | | : | : | : | : | : | : | EGISSVERAQXVQPMMNHARKEIGVEEAIDYLKSINAPF-GKNFDGRGMVISNIDIGTDY
                                                                                               MKKSTVLSLTTAAVILAAYAPNEVVLADTSSSEDALNISDKEKVAENKEKHENIHSAMET
                                        66
                                        Indels
                                        39; Mismatches 109;
            DB 6;
            Score 108.5; I
Pred. No. 3.3;
                                                                                                                                                                                                                                                                                                                                                                 221 KQDY-----PGVV--NDTTKD 234
                                                                                                                                                                                                                                                                                                                                                                                            -RDYFDPHGMHIAGILAGNDTEQD
             7.1%;
Query Match
Best Local Similarity 23.55
Best Local Conservative
                                                                                                                              23
                                                                                                                                                                                                                                                 143
                                                                                                                                                                                                                                                                                                        179
                                                                                                                                                                                                                                                                                                                                                                                            293
                                                                                               요
                                                                                                                             ò
                                                                                                                                                        셤
                                                                                                                                                                                     Š
                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                ઠે
                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                ઠે
                                                                                                                                                                                                                                                                                                                                                                                           유
```

```
the invention fractate to an independent of a cell. Also included are:

the foll antisense sequences given in the specification where expression

of the nucleic acid inhibits proliferation of a cell. Also included are:

concluding a polypeptide whose expression is inhibited by the antisense acid encoding a polypeptide whose expression is inhibited by the antisense concluded are:

concluded a not its fragment whose expression is inhibited by the antisense contisense nucleic acid; (4) an antibody capable of specifically binding the polypeptide; (5) producing the polypeptide; (6) inhibiting cellular concluderation, (7) identifying a compound that influences the activity of the gene product or that has an activity against a biological pathway concluded for the proliferation, or that inhibits cellular proliferation; (8) identifying a gene required for cellular proliferation or the biological pathway in which a proliferation-required gene or its gene product lies or a gene on which the test compound that inhibits proliferation of an organism acts; (9) manufacturing an antibiotic; (10) profilling a compound; activity; (11) aculture compound that inhibits proliferation of an organism. The antisense nucleic acids required confidentifying proteins or scenarion for homologous nucleic acids required confident proliferation of an organism. The antisense nucleic acids required confident confidence or a conjudent confidence or a conjudent confidence or a conjudent confidence or a conjudence o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           New antisense nucleic acids, useful for identifying proteins or screening for homologous nucleic acids required for cellular proliferation to isolate candidate molecules for rational drug discovery programs.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          drug discovery programs, or for screening homologous nucleic acids required for proliferation in cells other than S. aureus, S. typhimurium, K. pneumoniae or P. aeruginosa. The present sequence is encoded by one of the target prokaryotic essential genes. Note: The sequence data for this patent did not form part of the princed specification, but was obtained in electronic format directly from WIPO at
                                                                                            Antisense; prokaryotic essential gene; cell proliferation; drug design.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zyskind JW;
Xu HH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            :66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 2140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           relates to an isolated nucleic acid comprising
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7.1%; Score 108.5; DB 6; Length 2:
23.8%; Pred. No. 3.3;
tive 39; Mismatches 109; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ohlsen KL,
Forsyth RA,
                                           Protein encoded by Prokaryotic essential gene #31273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Haselbeck R,
Yamamoto R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 25; SEQ ID NO 73670; 1766pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ftp.wipo.int/pub/published_pct_sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Malone C,
Carr GJ,
                                                                                                                                                                                                                                                                                                                                                                                      25-OCT-2001; 2001US-0342923P.
08-FEB-2002; 2002US-00072851.
06-MAR-2002; 2002US-0362699P.
                                                                                                                                                                                                                                                                                                                                           21-MAR-2001; 2001US-00815242
06-SEP-2001; 2001US-00948993
                                                                                                                                                                                                                                                                                          21-MAR-2002; 2002WO-US009107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity 23.8%
Matches 77; Conservative
                                                                                                                                               Streptococcus pneumoniae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (ELIT-) ELITRA PHARM INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Zamudio C,
Trawick JD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2003-029926/02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-PSDB; ACA49616.
                                                                                                                                                                                              WO200277183-A2
                                                                                                                                                                                                                                                                                                                                                                  06-SEP-2001;
25-OCT-2001;
                                                                                                                                                                                                                                              03-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           o,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Wang |
Wall |
```

Š

ABU45746 standard; protein; 2140 AA.

ABU45746;

axxx

```
25-NOV-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    31-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 forage crop.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lerchl J,
                                                                                                                                                                                                                                                                                                                                                          398
                                                                                                                                                                                                                                                                                                                                                                                                                                       AAG80920;
                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Frank M,
                                                                                                                                                                        Matches
   ઠે
                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                   11X8X511X8X8X6X6X6X8X8X8X8X8X8X8X6X1X4X6
                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                  ò
                                                SQDFKEKKTAVIKEKEVVSKNPVIDNNTSNEEAKIKEENSNKSÇGDYTDSFVNKNTENPV 120
                                                                               YYDNSTYASHFYDPDTGTTYIPFAKHAKETGAKY-----FNLAGQAYQ----- 142
                                                                                              121 KEDKVVYIAEFKDKESGEKAIKELSSLKNTKVLYTYDRIFN--GSALETTPDNLDKIKOI 178
                                                                                                                                                                       179 HSKYENFVDTIK------NNYIVSD----SNGYWNWKGANPEDWIEGAAVAA 220
                                                                                                                                                                                     The invention relates to isolated polynucleotide (I) and polypeptide (II) sequences. (I) is useful as hybridisation probes, polymerase chain reaction (PCR) primers, oilgomers, and for chromosome and gene mapping, and in recombinant production of (II). The polynucleotides are also used in diagnostics as expressed sequence tags for identifying expressed somes. (I) is useful in gene therapy techniques to restore normal activity of (II) or to treat disease states involving (II). (II) is useful for generating antibodies against it, detecting or quantitating a polypeptide in issue, as molecular weight markers and as a food supplement. (II) and its binding partners are useful in medical imaging of sites expressing (II). (I) are useful for treating disorders
96
                                                                                                                                         ------MIVNRAIDIMSRNTTIVN--PNETALLNEWRADLENGIYSADY----ENP-
                                                                                                                            -------MOQAFFYLGL--SLHYLGDVNQPMHAANP-----TNLSYPMGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 New isolated polynucleotide and encoded polypeptides, useful in diagnostics, forensics, gene mapping, identification of mutations responsible for genetic disorders or other traits and to assess biodiversity.
                                                                                                                                                                                                                                                                                                                                                                                         Human; chromosome mapping; gene mapping; gene therapy; forensic;
food supplement; medical imaging; diagnostic, genetic disorder.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 20; SEQ ID NO 38749; 103pp; English.
                                                                                                                                                                                                                     234
                                                                                                                                                                                                                                  :|| :| | :: | | :: | 293 -RDYFDPHGMHIAGILAGNDTEQD 315
                                                                                                                                                                                                                                                                                                                                                                   Novel human diagnostic protein #8381.
                                                                                                                                                                                                                                                                                                 ABG08390 standard; protein; 444 AA
                                                                                                                                                                                                                    221 KQDY------PGVV--NDTTKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              30-MAR-2001; 2001WO-US008631.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tang YT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31-MAR-2000; 2000US-00540217
23-AUG-2000; 2000US-00649167
                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Drmanac RT, Liu C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2001-639362/73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (HYSE-) HYSEQ INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           N-PSDB; AAS72577
                                                                                                                                                                                                                                                                                                                                                                                                                                               WO200175067-A2
                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11-OCT-2001.
                                                                                                                                                                                                                                                                                                                                              13-FEB-2002
                                   23
                                                          19
                                                                                                                           143
                                                                                                                                                                                                                                                                                                                        ABG08390;
                                                                                                                                                                                                                                                                            RESULT 5
                                                     g
                                                                             ઠે
                                                                                              요
                                                                                                                         ઠે
                                                                                                                                             쉱
                                                                                                                                                                   ò
                                                                                                                                                                                          음
                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                            ઠે
```

```
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          313 ----TSHSNVVLPSEKPTTHHYTEEKTETNEDISNANSEN-----YHSSHYDTDTFQ 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               115 TYIPPAKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVN----QPMHAANFT 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        361 RELNKFSHAKETA-------GSSTWFIGDINSDKPQEEPKDNSS 397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Moss, Physcomitrella patens, lipid metabolism related protein, LMRP; lipid blosynthesis, lipid modification, lipid degradation, cofactor; fatty acid, transport; genetic engineering; fatty acid; enzyme; plant; microorganism; polyunsaturated fatty acid; oilseed plant; maize; wheat; biotic stress tolerance; abiotic stress tolerance; rye; oat; triticale; rice; barty; soybean; peanut; cotton; rapsesed, canola; manihor; pepper; sunflower; tagetes; potato; tobacco; eggplant; tomato; Vicia; pea; alfalfa; coffee; cacao; tea; Salix; oil palm; coconut; perennial grass;
involving aberrant protein expression or biological activity. The polypeptide and polynucleotide sequences have applications in diagnostics, forensics, gene mapping, identification of mutations responsible for genetic disorders or other traits to assess biodiversity and to produce other types of data and products dependent on DNA and amino acid sequences. ABG00010-ABG30377 represent novel human diagnostic maino acid sequences of the invention. Note: The sequence data for this patent did not appear in the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published_pct_sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2 KKKVIALAAMVA----LAAPVQSVVFAQTNNSESPAPILRWSAEDKHNEGINSHLWIVNR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    58 AIDIMSRNTTIVNPNE---TALLNEWRADLENGIYSADYENPYYDNSTYASHPYDPDTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nucleic acids encoding lipid metabolism related proteins from
Psychomitrella patens useful to produce fine chemicals in modified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ğ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Plastidial delta 9 ACP desaturase partial clone protein sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bischoff
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     52;
                                                                                                                                                                                                                                                                                                                                                                                                                                 / Match 6.6%; Score 100; DB 4; Length 444; Local Similarity 22.3%; Pred. No. 2.1; hes 48; Conservative 36; Mismatches 79; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7 K
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cirpus
Reski
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SATDP-SPIKKTR---XTKKNRSPSCETDXATNWK 428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 171 NLSYPMGFHSKYENFVDTIKNNYIVSDSNGYWNWK 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Reindl A,
Schmidt R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAG80920 standard; protein; 414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      E B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ehrhardt
Duwenig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22-NOV-2000; 2000WO-EP011615.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99WO-EP009108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (BADI ) BASF PLANT SCI GMBH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 28-AUG-2001 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Physcomitrella patens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Renz A,
Freund A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 2001-367669/38.
                                                                                                                                                                                                                                                                                                                                                                      Sequence 444 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WO200138484-A2.
```

```
16-JUN-2003
                                                                                                                                                                                                   Query Match
Best Local Si
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Synthetic
                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                        267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ABU08984;
                                                                                                                                                                                                                                                                                                                                          113
                                                                                                                                                                                                                                                                                              63
                                                                                                                                                                                                                                                                                                                                                                                                                                  219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Protein
                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠે
                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                              ઠે
                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                       유
                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                       The present invention describes isolated nucleic acid sequences which encode lipid metabolism related proteins (LMRP). The LMRP nucleic acids encan be used to modify lipids and fatty acids, cofactors and enzymes in microorganisms and plants, particularly to produce polyunsaturated fatty acids, and are especially useful in oilseed plants. The nucleic acids may also confer biotic or abiotic stress tolerance, particularly to maize, wheat, rye, oat, triticale, rice, barley, soybeaut, peanut, cotton, rapeseed, canola, manihot, pepper, sunflower, tagetes, potato, tobacco, eggplant, tomato, vicia species, pea, alfalfa, coffee, cacao, tea, Salix species, oil palm, coconut, perennial grasses and forage crops, AMH50878 to AMH50882 represent primers used in the exemplification of the present invention. AMH5082 represent LMRP protein sequences, given in the
                                                                                                                                                                                                                                                                                                        231
                                                                                                                                                                                                                                                                                                                              NGIYSADYENPYYDNSTYASHFYDPDTGTTYIPFAKHAKETG-AKYFNLAG-QAYQNQDM 143
                                                                                                                                                                                                                                                                                                                                                    NNPYLGFVYTSFQERATFISH-----GNT----ARHAKEHGDAKLATICGIIAADERRH 281
                                                                                                                                                                                                                                                                                                                                                                                        : |: : : : : : |: ENAYTKIVEKLFEIDPDGAMLAFADMRKKXISMPAHLMYDGQNDHLFDDFSLVAQRTG-- 339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Brevibacillus laterosporus; insecticidal secreted protein; ISPlA; ISP2A; ISP1A-1; ISP2A-1; toxin; bacterial; plant protection.
organisms, particularly polyunsaturated fatty acids in oilseed plants.
                                                                                                                                                                                                                                                                                              31 SPAP----ILRWSAED-KHNEGINSHLWIVNRAIDIMSRNTTIVNPNETALLNEWRADLE
                                                                                                                                                                                                                                                                                                                                                                           QQAFFYLGLSLHYLGDVNQPMHAANFTNLSYPMGFHSKYENFVDT1KNNY-1VSDSNGYW
                                                                                                                                                                                                                                                                                                                                                                                                                                    NWKGANPEDWIEGAAVAAKQDYPGVVNDTTKDWFV------KAAVSQEY
                                                                                                                                                                                                                                     6.4%; Score 98; DB 4; Length 414;
llarity 21.6%; Pred. No. 2.9;
Conservative 39; Mismatches 94; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Van Rie J;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Modified ISP1A-1 protein SEQ ID NO:10.
                     Page 118; 120pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAG68288 standard; protein; 836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (AVET ) AVENTIS CROPSCIENCE NV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Damme N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18-MAY-2000; 2000US-00573872.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17-MAY-2001; 2001WO-EP005702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Brevibacillus laterosporus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Arnaut G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WPI; 2002-062371/08
N-PSDB; ABA04061.
                                                                                                                                                                                                                                               Local Similarity
                                                                                                                                                                                            present invention
                                                                                                                                                                                                                 Seguence 414 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200187931-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19-PEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   22-NOV-2001.
                                                                                                                                                                                                                                                           20;
                     Claim 31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Boets A,
                                                                                                                                                                                                                                                                                                                              86
                                                                                                                                                                                                                                                                                                                                                                                                282
                                                                                                                                                                                                                                                                                                                                                                                                                      203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAG68288;
                                                                                                                                                                                                                                                                                                                                                                                                                                            340
                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT
셤
                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
```

```
14;
                                                                                                                                                                                                 The present invention describes 2 Brevibacillus laterosporus insecticidal secreted proteins designated ISP1A and ISP2A. ISP1A, and ISP2A, are insecticidal to Diabrocica virgifiera larvae when ingested by larvae in combination with the ISP2A amino acid sequence 51 to 457, or ISP1A amino acid sequence 38 to 871, respectively. ISP1A and ISP2A are useful for controlling insects. The polymucleotide sequences encoding ISP1A and ISP2A can be used in the production of transgenic plants resistant to coleopteran insects. The present sequence represents a modified ISP1A-1 protein from the present invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1. .2
/note= "The wild-type signal peptide (amino acids 1-37 of
ABU08981) have been substituted by Met-Ala"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       320 SFGVSVNYQHSETVANEWGSATNDGTHINGAESAYLNANVRYNNVGTGAIYETKPTTSFI 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   --GTTYIPFAKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFT 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           432 QLNTYLSNKKPILLETDQVEGKYAIKDTNGNITIAGDWNGITDEISAKTÄSIIVDNGNQM 491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----AAKQDYPGVVNDTTKDWFVKAAVSQEYADKWRAEVTPVTGKRLMEAQRVTAGYIHL 274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Insecticidal secreted protein; toxin; ISP2A; insecticide; Diabrotica sp; Leptinotarsa sp; Anthonomus sp; corn; coleopteran insect; transgenic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VAAFPSVNVSLEKVILSKNEDLSHSVESSQSTNWSY--TNTEGVN-----VNAGWSGLGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SRNTTIVNPNETALLNEWRADLENGIYSADYENPY----YDN-STYASHFYDPDT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          171 NLSYPMGFHSKYENFVDTIKNNYIVSDSNG----YWNWKGANPEDWIEGAAV----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LAAMVALAAPVOSVVFAQT---NNSESPAPILRWSAEDKHNEGINSHLWIVNRAIDIM--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
New bacterial insecticidal proteins, useful for making insecticidal composition to protect plants from damage by insects especially coleopteran insects.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B. laterosporus truncated insecticidal secreted protein, ISPLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; Score 96.5; DB 5; Length 8; Pred. No. 11; 48; Mismatches 140; Indels

    .836
    /label= Mature_ISP1A

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABU08984 standard; protein; 836 AA.
                                                                                                                                          Claim 4; Page 82-86; 86pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Brevibacillus laterosporus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity 21.08
nes 64; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            275 WFDTY 279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 836 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US2002199215-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        : |
YVDEY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        muatnt; mutein.
```

```
The present sequence represents a Brevibacillus laterosporus insecticidal secreted protein designated ISP1A. ISP1A, and ISP2A, are insecticidal to Diabrotica virgifera larvae when ingested by larvae in combination with the ISP2A amino acid sequence 51 to 457, or ISP1A amino acid sequence 51 to 811, respectively. ISP1A and ISP2A are useful for controlling insects. The polynucleotide sequences encoding ISP1A and ISP2A can be used in the production of transgenic plants resistant to coleopteran insects
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SRNTTIVNPNETALLANEWRADLENGIYSADYENPY----YDN-STYASHFYDPDT--- 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               355 SPGVSVNYQHSETVANEMGSATNDGTHINGAESAYLNANVRYNNVGTGAIYETKPTTSPI 414
                                               492 SEKRVAAKDYTN-PEDKTPNLSVKEALKLAYPD----BIEBKDGLLFYNDQPIFBASVQS 546
              ----AAKQDYPGVVNDTTKDWFVKAAVSQBYADKWRAEVTPVTGKRLMBAQRVTAGYIHL 274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Brevibacillus laterosporus; insecticidal secreted protein; ISPlA; ISP2A; ISP1A-1; ISP2A-1; toxin; bacterial; plant protection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               302 VAAFPSVNVSLEKVILSKNBDLSHSVESSQSTNWSY--TNTBGVN-----VNAGWSGLGP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LAAMVALAAPVQSVVFAQT---NNSESPAPILRWSAEDKHNEGINSHLWIVNRAIDIM--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                New bacterial insecticidal proteins, useful for making insecticidal composition to protect plants from damage by insects especially coleopteran insects.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 871;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Brevibacillus laterosporus ISP1A protein SEQ ID NO:2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21.0%; Pred. No. 12;
tive 48; Mismatches 140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ۵,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6.3%; Score 96.5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Van Rie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Claim 4; Page 61-65; 86pp; English.
                                                                                                                                                                                                                                                                                                                AAG68285 standard; protein; 871 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1. .37
/label= signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (AVET ) AVENTIS CROPSCIENCE NV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Damme N,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   38. .871
/label= ISP1A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17-MAY-2001; 2001WO-BP005702.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18-MAY-2000; 2000US-00573872.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Brevibacillus laterosporus.
                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                64; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Boets A, Arnaut G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI; 2002-062371/08.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
                                                                                                                         275 WFDTY 279
                                                                                                                                                                              551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N-PSDB; ABA04056.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 871 AA;
                                                                                                                                                                   547 YVDEY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO200187931-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                           19-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     22-NOV-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                  ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ద
                                                                                                                                                                        셤
                                                           셤
                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The invention relates to a new insecticidal secreted protein comprising:

(a) amino acid sequence of the smallest active toxin of the protein

comprising a sequence of the smallest active toxin of the protein

comprising a sequence of the protease-digestion fragment of the

cor (b) the amino acid sequence of the protease-digestion fragment of the

protein encoded by the insecticidal secreted protein (isp)1A or isp2A DNA

deposited at the BCM-LMBP under accession number LMBP 4009. Also

condition and short forms of the corn zrp2 gene promoter region (e.g. the

comprising the DNA and a plant-expressible promoter region (e.g. the

comprising the chimmeric gene promoter), a plant cells.

CC omprising the chimmeric gene of integrated in its cells,

a microorganism transformed to contain the DNA encoding ISP1A or ISP2A, a

cc plant or a seed comprising the crimeric gene of integrated in its cells,

comprising the chimmeric gene of integrated in its cells,

a microorganism transformed to contain the DNA encoding ISP1A or ISP2A, a

cc plants from the cells a plant, a process for rendering a plant resistant to

coleopteran insects (comprising transforming plant cells with a first

coleopteran insects (comprising transforming plant cells with a first or orlanger and a second chimeric gene, and regenerating transformed

coleopteran insects (comprising transforming or growing in a

cc plants from the cells which a first chimmeric gene and a second

chimmeric gene, where the first and second chimeric gene are ISP1A and

cc leld plants transformed with a first chimmeric gene and a second

chimmeric gene, where the first and second chimeric gene are ISP1A and

cc leld plants transformed with a first chimmeric gene are ISP1A and

cc leld plants from the cells which a first chimmeric gene are ISP1A controlling

cc cleopteran insecticidal secreted proteins and may be an a second

chimmeric gene, where the first and second chimeric gene are ISP1A controlling or growing in a plants (sepecially crops like corn) from damage caused b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  267 VAAFPSVNVSLEKVILSKNEDLSHSVESSQSTNWSY--TINTEGVN-----VNAGWSGLGP 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                320 SFGVSVNYQHSETVANEWGSATNDGTHINGAESAYLNANVRYNNVGTGAIYETKPTTSFI 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           380 LDGTT-İGTIK-AKENTTALTILPDQSYPEKGKN-----ĞIAINTMDDFNSRPIPLNKB 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             171 NLSYPMGFHSKYENFVDTIKNNYIVSDSNG----YWNWKGANPEDWIEGAAV----- 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                432 OLNTYLSNKKPILLETDQVEGKYAIKDTNGNITIAGDWNGITDEISAKTASIIVDNGNQM 491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8 LAAMVALAAPVQSVVFAQT---NNSESPAPILRWSAEDKHNEGINSHLWIVNRAIDIM-- 62
                                                                                                                                                                                                                                                                                                                                                                                                                        New insecticidal secreted proteins and DNA sequences, useful in making insecticidal compositions or transgenic plants to protect plants from damage caused by insects, particularly coleopteran insects.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SRNTTIVNPNETALLNEWRADLENGIYSADYENPY----YDN-STYASHFYDPDI---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        113 --GTTYIPPAKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  53; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6.3%; Score 96.5; DB 6; Length 836;
21.0%; Pred. No. 11;
tive 48; Mismatches 140; Indels 53
                                                                                                                                                                                                                                                                                               Damme N;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 4; Page 32-34; 38pp; English.
                                                                                                                                                                                                                                                                                            Rie JV,
                                               17-MAY-2001, 2001US-00858525
                                                                                                     17-MAY-2001; 2001US-00858525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     64; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
                                                                                                                                                                                                                                                                                                                                                 WPI; 2003-361872/34.
                                                                                                                                                                                                                                                                                            Boets A, Arnaut G,
                                                                                                                                                     (BOET/) BOETS A. (ARNA/) ARNAUT G. (RIEJ/) RIE J V. (DAMM/) DAMME N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 836 AA;
                                                                                                                                                                                                                                                                                                                                                                              N-PSDB; ABX94353
26-DEC-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
```

14;

53;

354

ద

à

셤 ò 셤 ò

g ò

ò 8 ò

```
included are a DNA sequence encoding the protein cited above, a chimaeric gene comprising the DNA and a plant-expressible promoter region (e.g. the long and short forms of the corn zrp2 gene promoter), a plant cell.

Comprising the chimaeric gene used to produce the protein cited above, a plant or a seed comprising the chimeric gene of integrated in its cells, a process for controlling insects comprising the moderning isplan or ISP2A, a process for controlling insects comprising expressing the protein cited above in cells of a plant, a process for rendering a plant resistant to coleopteran insects (comprising transforming plant cells with a first chimaeric gene and a second chimaric gene, and regenerating transformed plants from the cells which are resistant to insects, where the first and second chimaeric gene are ISP1A and ISP2A, and a process for controlling coleopteran insect pests (comprising planting, sowing or growing in a field plants transformed with a first chimaeric gene and a second chimaeric gene and second chimaeric gene, where the first and second chimaeric gene are ISP1A and ISP2A, and a process for controlling coleopteran insect the first and second chimaeric gene are ISP1A and ISP2A). The insecticidal secreted proteins and DNA sequences are useful in making insecticidal compositions or transgenic plants to protect plants (especially crops like corn) from damage caused by insects particularly coleopteran insects (e.g. Diabrotica sp., Leptinotarsa sp. and Anthonomus sp.). The proteins are useful for preventing or minimising insectic damage to plants in a field. The present sequence represents ISP1A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       --GTTYIPFAKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFT 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                415 LDGTT-IGTIK-AKENTTALTILPDQSYPEKGKN-----GIAINTMDDFNSRPIPLNKE 466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ----AAKQDYPGVVNDTTKDWFVKAAVSQEYADKWRAEVTPVTGKRLMEAQRVTAGYIHL 274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | :: : : ||| : | | | : | | | 355 SFGVSVNYQHSETVANEWGSATNDGTHINGAESAYLNANVRYNNVGTGAIYETKPTTSFI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SRNTTIVNPNETALLNEWRADLENGIYSADYENPY----YDN-STYASHFYDPDT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               171 NLSYPMGFHSKYENFVDTIKNNYIVSDSNG----YWNWKGANPEDWIEGAAV----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          467 OLNTYLSNKKPILLETDQVEGKYAIKDTNGNITIAGDWNGITDEISAKTASIIVDNGNOM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8 LAAMVALAAPVQSVVFAQT---NNSESPAPILRWSAEDKHNEGINSHLWIVNRAIDIM--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 6; Length 871;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; Score 96.5; DB 6; Length 8:
; Pred. No. 12;
48; Mismatches 140; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         eukaryote; drug target; diagnosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ABR52701 standard; protein; 1283 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     focal Similarity 21.0%; les 64; Conservative 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20-DEC-2001; 2001EP-00130253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Protein sequence #SEQ ID 267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20-JUN-2003 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Saccharomyces cerevisiae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Multiprotein complex;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          275 WPDTY 279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 871 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          : | |
582 YVDEY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EP1258494-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20-NOV-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABR52701;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ABR52701
         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The invention relates to a new insecticidal secreted protein comprising:

(a) amino acid sequence of the smallest active toxin of the protein comprising a sequence appearing as ABU08981 (ISPIA) or ABU08982 (ISPIA); or (b) the amino acid sequence of the protease-digestion fragment of the protein encoded by the insecticidal secreted protein (isp)1A or isp2A DNA deposited at the BCCM-LMBP under accession number LMBP 4009. Also
                                                           LDGTT-IGTIK-AKENTTALTILPDQSYPEKGKN-----GIAINTMDDFNSRPIPLNKE 466
                                                                                                                                                                                                                   ----AAKODYPGVVNDTTKDWFVKAAVSQEYADKWRAEVTPVTGKRLMEAQRVTAGYIHL 274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           38. .768
/label= Active_fragment
/note= "This protein is specifically claimed in claim 3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                secreted protein; toxin; ISP1A; insecticide; Diabrotica sp; ap; Anthonomus sp; corn; coleopteran insect; transgenic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /label= Mature_ISP1A
/note=_This protein is specifically claimed in claim 2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            New insecticidal secreted proteins and DNA sequences, useful in making insecticidal compositions or transgenic plants to protect plants from damage caused by insects, particularly coleopteran insects.
                                                                                                                                                                                                                                                   | : | | : | | : | | SEKRVAAKDYTN-PEDKTPNLSVKEALKLAYPD----EIEEKDGLLFYNDQPIFEASVQS
                                --GTTYIPFAKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFT
                                                                                                                                                  |: : | : | : | : | OLNTYLSNKKPILLETDQVEGKYAIKDTNGNITIAGDWNGITDEISAKTASIIVDNGNQM
                                                                                                                       NLSYPMGFHSKYENFVDTIKNNYIVSDSNG----YWNWKGANPEDWIEGAAV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B. laterosporus insecticidal secreted protein, ISP1A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1. .37
/label= Signal_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Rie JV, Damme N;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ABU08981 standard; protein; 871 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 1; Page 18-20; 38pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17-MAY-2001; 2001US-00858525.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17-MAY-2001; 2001US-00858525.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Brevibacillus laterosporus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Boets A, Arnaut G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 2003-361872/34.
                                                                                                                                                                                                                                                                                                                                               : | |
YVDEY 586
                                                                                                                                                                                                                                                                                                                 275 WPDTY 279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BOETS A.
ARNAUT G.
RIE J V.
DAMME N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N-PSDB; ABX94348
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Insecticidal
Leptinotarsa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  16-JUN-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            26-DEC-2002.
                                                                          415
                                                                                                                       171
                                                                                                                                                                    467
                                                                                                                                                                                                                   219
                                                                                                                                                                                                                                                                527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABU08981:
                             113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (RIEJ/) (DAMM/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (BOET/)
                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABU08981
```

14;

Gaps

```
9905-0123180P-
9905-012548P-
9905-012548P-
9905-0126748P-
9905-0126748P-
9905-0128714P-
9905-0128714P-
9905-0138448P-
9905-0138448P-
9905-0138448P-
9905-0131448P-
9905-0131448P-
9905-0131448P-
9905-0131448P-
9905-013148P-
9905-013128P-
9905-013128P-
9905-013128P-
9905-013138P-
9905-013138P-
9905-013138P-
9905-013138P-
9905-013138P-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99US-0140823P.
99US-0140991P.
99US-0141287P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99US-0139456P.
99US-0139457P.
99US-0139458P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99US-0139462P.
99US-0139463P.
99US-0139750P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99US-0139453P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99US-0139459P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0139817P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99US-0140353P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    99US-0139454P
                                                       25-FEB-2000; 2000EP-00301439.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18-JUN-1999;
18-JUN-1999;
18-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 16-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                      -MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18-JUN-1999
18-JUN-1999
           EP1033405-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1999, JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 08-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10-010-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            04-JUN-1999
                                  06-SEP-2000
944 TFEDSTLRTLYVAAFTASSYASTTKRV-AKPFNPLLGETFEYSRPDKGYRFFTEGVSHH- 1001
                                                                                                                                                                                                                 The invention relates to multiprotein complexes from eukaryotes. Proteins of the invention and DNA sequences encoding them are given in records ABR52586-ABR553903 and ACC66010-ACC6144 respectively. The complexes are obtainable by using a protein as a bait and isolating the set of proteins which is attached thereto from cells. Such protein complexes may comprise up to 30 distinct proteins. Protein complexes of the invention are useful for diagnosing a disease or disorder, or as a target for an active agent of a plarmaceutical, preferably a drug target in the treatment or prevention of a disease or disorder. Note: The sequence data for this appeared is not represented in the printed specification, but is based on sequence information supplied by the European Patent Office. The complete document is available on CD-ROM
                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps 17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ---LWIVNRAI---DIMSRNTTIVNPNE-TALLNEWRADLENGIYSADYENPYYDNSTYAS 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       106 HFYDPDTGTTYI-----PFAKHAKETGAKYFN-LAGQA--YQNQDMQQAFFYLGLSLHY 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       157 LGDVNQPMHAANFINLSYPMGFHSKYENFVDTIKONYIVSDSN-GYWN----- 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 MKKKVLALAAMVALAAPVQSVVFAQTNNSESPAPILRWSAEDKHNEGINSH------ 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter; termination sequence.
                                                                                                                                                            ö
                                                                                                                                 New isolated protein complexes useful for diagnosing a disease or disorder, or as a target for an active agent of a pharmaceutical, preferably a drug target in the treatment or prevention of disease disorder.
                                                                                                                                                                                                                                                                                                                                                                                                       Match
Local Similarity 25.9%; Pred. No. 26;
Local Similarity 21; Mismatches 104; Indels 71;
                                                           Kruse UD, Kuester BD;
                                                                                                                                                                                               Disclosure; SEQ ID NO 267; 17pp + Sequence Listing; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Arabidopsis thaliana protein fragment SEQ ID NO: 66504.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1053 LYTWK--KPNNTVIGILIGNPQVDNHGEVNVVNHTTGD 1088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ---WKGANPEDWIEGAAVAAKQ-DYPG---VVNDTTKD 234
                                                             Bauer A, Gavin A, Grandi P, Krause R, K
Marzioch M, Schultz JD, Superti-Furga GD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAG52327 standard; protein; 192 AA
                15-MAY-2001; 2001EP-00111774.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18-OCT-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Arabidopsis thaliana
                                                                                                  WPI; 2003-250078/25.
                                       (CELL-) CELLZOME AG
                                                                                                                                                                                                                                                                                                                                                                                       Sequence 1283 AA;
                                                                                                               N-PSDB; ACC60743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAG52327;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25
                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                           Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     合
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
```

٠.

```
990S-0141842P.
990S-0142154P.
990S-0142395P.
990S-0142390P.
990S-0142342P.
990S-0142342P.
990S-0144332P.
990S-0144333P.
990S-0144333P.
990S-0149338P.
990S-0149339P.
990S-0149339P.
990S-0149339P.
990S-014933P.
990S-0151065P.
990S-0151065P.
01-70L-1999

02-70L-1999

06-70L-1999

08-70L-1999

12-70L-1999

13-70L-1999

14-70L-1999

15-70L-1999

16-70L-1999

19-70L-1999

19-70L-1999

19-70L-1999

19-70L-1999

19-70L-1999

20-70L-1999

20-70L-1999

21-70L-1999

22-70L-1999

22-70L-1999

23-70L-1999

                                                                                                                                                                                                                                                                                                27 - JUL - 1999;
27 - JUL - 1999;
28 - JUL - 1999;
02 - AUG - 1999;
02 - AUG - 1999;
03 - AUG - 1999;
04 - AUG - 1999;
05 - AUG - 1999;
06 - AUG - 1999;
06 - AUG - 1999;
07 - AUG - 1999;
13 - AUG - 1999;
13 - AUG - 1999;
16 - AUG - 1999;
17 - AUG - 1999;
18 - AUG - 1999;
20 - AUG - 1999;
22 - AUG - 1999;
23 - AUG - 1999;
25 - AUG - 1999;
27 - AUG - 1999;
27 - AUG - 1999;
31 - AUG - 1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10-SEP-1999;
13-SEP-1999;
15-SEP-1999;
```

```
GOAYONODMOOAFFYLGLSLHYLGDVNOPMHAANFTN-----LSYPMGFH---- 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----SKYENFVDTIKNNYIVSDSNGYW-----NWKGAN-----PEDWI-EGAAVA 219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | : | : | : | : | : | 1 | ... | 1 | ... | 1 | ... | 1 | ... | 1 | ... | 1 | ... | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 135 | 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GISDRRYNWIEALLFLS---HFMGDIHQPMH-VGFTSDEGGNTIDLRWYKHKSNLHHVWD 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 3; Length 192;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  220 AKQDYPGVVNDTTKDWFVKAAVSQEYADKWRAEVTPVTGKRLME 263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | | | : : | | : | : | CKWGYKGVKSGET-----LSEEYFN----TRLPIVMKRIVQ 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6.2%; Score 94.5; D
21.3%; Pred. No. 2;
ive 29; Mismatches
                    9905-0155139P

9905-0155638P

9905-0155638P

9905-0156538P

9905-015717P

9905-015713P

9905-01671P

9905-016071P

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99US-0161992P.
99US-0161993P.
99US-0162142P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local Similarity
ses 35; Conserv
16-SEP-1999
22-SEP-1999
22-SEP-1999
23-SEP-1999
24-SEP-1999
06-0CT-1999
06-0CT-1999
13-0CT-1999
13-0CT-1999
13-0CT-1999
14-0CT-1999
14-0CT-1999
14-0CT-1999
14-0CT-1999
14-0CT-1999
14-0CT-1999
12-0CT-1999
12-0CT-1999
12-0CT-1999
12-0CT-1999
12-0CT-1999
13-0CT-1999
13-0CT-1999
14-0CT-1999
15-0CT-1999
16-0CT-1999
17-0CT-1999
18-0CT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 13
AAG05009
     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
```

ģ

AAG05009 standard; protein; 192 AA AAG05009; XXXXXXXXXXXXXXXXX

17-OCT-2000 (first entry)

Arabidopsis thaliana protein fragment SEQ ID NO: 1251.

Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter; termination sequence.

```
990S-0141287P.
990S-0141842P.
990S-0141842P.
990S-0142055P.
990S-0142059P.
990S-014203P.
990S-0142920P.
990S-0144085P.
990S-0144085P.
990S-0144331P.
990S-014508P.
990S-014508P.
990S-014508P.
990S-014508P.
990S-014508P.
990S-014531P.
990S-014531P.
990S-0147302P.
990S-0147302P.
990S-0147302P.
990S-0147302P.
990S-0147302P.
990S-0147331P.
990S-0149368P.
990S-0149328P.
990S-0149331P.
990S-0149331P.
990S-0151066P.
990S-0151066P.
990S-0151066P.
 30-UW-1999;
01-JUL-1999;
02-JUL-1999;
06-JUL-1999;
06-JUL-1999;
06-JUL-1999;
13-JUL-1999;
13-JUL-1999;
14-JUL-1999;
15-JUL-1999;
15-JUL-1999;
16-JUL-1999;
16-JUL-1999;
19-JUL-1999;
19-JUL-1999;
19-JUL-1999;
22-JUL-1999;
22-JUL-1999;
22-JUL-1999;
22-JUL-1999;
22-JUL-1999;
22-JUL-1999;
22-JUL-1999;
22-JUL-1999;
23-JUL-1999;
23-JUL-1999;
23-JUL-1999;
24-JUL-1999;
25-JUL-1999;
26-AUG-1999;
06-AUG-1999;
06-AUG-1999;
06-AUG-1999;
06-AUG-1999;
06-AUG-1999;
06-AUG-1999;
06-AUG-1999;
06-AUG-1999;
11-AUG-1999;
11-AUG-1999;
11-AUG-1999;
11-AUG-1999;
11-AUG-1999;
12-AUG-1999;
13-AUG-1999;
13-AUG-1999;
13-AUG-1999;
14-AUG-1999;
15-AUG-1999;
17-AUG-1999;
18-AUG-1999;
18-AUG-1999;
18-AUG-1999;
18-AUG-1999;
18-AUG-1999;
19-AUG-1999;
19-AUG-1999;
19-AUG-1999;
19-AUG-1999;
19-AUG-1999;
19-AUG-1999;
19-AUG-1999;
19-AUG-1999;
10-SEP-1999;
    99US-0121825P.
99US-0123180P.
99US-0123180P.
99US-0125548P.
99US-012564P.
99US-012664P.
99US-012664P.
99US-0128234P.
99US-0138234P.
99US-0138234P.
99US-013824BP.
99US-0138484P.
99US-0131448P.
99US-0131448P.
99US-0131448P.
99US-0131488P.
99US-013481P.
99US-0139452P.
99US-0139458P.
                                                                           2000EP-00301439
       Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                   06-MAY-1999

11-MAY-1999

11-MAY-1999

14-MAY-1999

14-MAY-1999

14-MAY-1999

19-MAY-1999

20-MAY-1999

21-MAY-1999

22-MAY-1999

22-MAY-1999

22-MAY-1999

23-MAY-1999

24-MAY-1999

24-MAY-1999

24-MAY-1999

24-MAY-1999

24-MAY-1999

24-MAY-1999

24-MAY-1999

25-MAY-1999

26-MAY-1999

26-MAY-1999

27-MAY-1999

28-MAY-1999

28-MA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              24-JUN-1999;
28-JUN-1999;
29-JUN-1999;
                                                                                                25-FEB-1999;
05-MAR-1999;
23-MAR-1999;
25-MAR-1999;
01-APR-1999;
06-APR-1999;
06-APR-1999;
16-APR-1999;
16-APR-1999;
12-APR-1999;
23-APR-1999;
23-APR-1999;
30-APR-1999;
30-APR-1999;
66-MAY-1999;
05-MAY-1999;
06-MAY-1999;
06-MAY-1999;
06-MAY-1999;
                                                                         25-FEB-2000;
                              EP1033405-A2
                                                     06-SEP-2000
```

```
9908-0121825P-
9908-0123180P-
9908-0125788P-
9908-0125788P-
9908-0126785P-
9908-0126785P-
9908-0126784P-
9908-0128744P-
9908-0130845P-
9908-0132484P-
9908-0132484P-
9908-0132484P-
9908-0132487P-
9908-0132484P-
9908-0132484P-
9908-0132484P-
9908-0132484P-
9908-0132484P-
9908-0132484P-
9908-0132485P-
9908-0134218P-
9908-0134218P-
9908-0134218P-
9908-0134218P-
9908-0134221P-
9908-013462P-
9908-0139461P-
9908-0139461P-
9908-0139461P-
9908-0139461P-
9908-0139461P-
                                                                                        25-FEB-2000; 2000EP-00301439
                Arabidopsis thaliana.
                                        EP1033405-A2
                                                                                                                              05-MAR-1999;
09-MAR-1999;
23-MAR-1999;
25-MAR-1999;
01-APR-1999;
06-APR-1999;
08-APR-1999;
16-APR-1999;
116-APR-1999;
23-APR-1999;
                                                                                                                                                                                                                                                                                                             30-APR-1999;
30-APR-1999;
04-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                06-MAY-1999;
06-MAY-1999;
07-MAY-1999;
                                                                                                                                                                                                                                                                                     23-APR-1999;
28-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          14-MAY-1999;
18-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                    05-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                       11-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                             4-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21-MAY-1999
24-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   27-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               08-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                24-JUN-1999
28-JUN-1999
                                                                 06-SEP-2000
                                                                                                                  25-FEB-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                 14-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                20-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       25-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .8-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       23-JUN-1999
23-JUN-1999
     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GQAYQNQDWQQAFFYLGLSLHYLGDVNQPMHAANFTN-----LSYPMGFH---- 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----SKYENFVDTIKNNYIVSDSNGYW----NWKGAN-----PEDWI-EGAAVA 219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1: : | : : | : : | : : | 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | : : : | : | : | : | CRSDRRYNMTEALLFLS---HFMGDIHQPMH-VGFTSDEGGNTIDLRWYKHKSNLHHVWD 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter; termination sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 3; Length 192;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     220 AKODYPGVVNDTTKDWFVKAAVSQEYADKWRAEVTPVTGKRLME 263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     136 CKWGYKGVKSGET-----LSEEYFN----TRLPIVMKRIVQ 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29; Mismatches 49; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Arabidopsis thaliana protein fragment SEQ ID NO: 1250.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6.2%; Score 94.5; 21.3%; Pred. No. 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAG05008 standard; protein; 305 AA
 990S-0154018P-
990S-015403P-
990S-0154739P-
990S-0155139P-
990S-0155638P-
990S-0156458P-
990S-0156458P-
990S-0156458P-
990S-0157753P-
990S-0159239P-
990S-0159233P-
990S-0159233P-
990S-0159233P-
990S-0159234P-
990S-0159234P-
990S-016941P-
990S-0160741P-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity 21.3
les 35; Conservative
15-SEP-1999,
20-SEP-1999,
22-SEP-1999,
23-SEP-1999,
24-SEP-1999,
24-SEP-1999,
24-SEP-1999,
24-SEP-1999,
24-SEP-1999,
24-SEP-1999,
24-SEP-1999,
34-OCT-1999,
34-OCT-1999,
34-OCT-1999,
34-OCT-1999,
34-OCT-1999,
35-OCT-1999,
36-OCT-1999,
36-OC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAG05008;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Ma
Best Loca
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAG05008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MARKEX HX SX SX S
  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ठे
```

```
PR 29--7UV-1999 PUSC -0140991P

PR 10--7UV-1999 PUSC -0141242P

PR 01--7UV-1999 PUSC -0141242P

PR 06--7UV-1999 PUSC -014230P

PR 11--7UV-1999 PUSC -014230P

PR 11--7UV-1999 PUSC -014331P

PR 11--7UV-1999 PUSC -0144082P

PR 11--7UV-1999 PUSC -0144082P

PR 11--7UV-1999 PUSC -0144313P

PR 12--7UV-1999 PUSC -0144313P

PR 22--7UV-1999 PUSC -014431P

PR 22--7UV-1999 PUSC -0144341P

PR 22--7UV-1999 PUSC -0144341P

PR 22--7UV-1999 PUSC -0144341P

PR 22--7UV-1999 PUSC -0144342P

PR 22--7UV-1999 PUSC -0144342P

PR 22--7UV-1999 PUSC -014932P

PUSC -014932P

PUSC -014932P

PUSC -014932P

PUSC -014932P

PUSC -014932P

PUSC -014932P

PUSC -0149
```

```
135 GQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFTN-----LSYPMGFH---- 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----SKYENFVDTIKNNYIVSDSNGYW----NWKGAN-----PEDWI-EGAAVA 219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       189 REIILTALKENYDKNLDLLQBDLEKNITNGLWHDDLSSWTECNDLIACPHKYASESIKLA 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6.2%; Score 94.5; DB 3; Length 305; larity 21.3%; Pred. No. 3.9; Conservative 29; Mismatches 49; Indels 5:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     220 AKQDYPGVVNDTTKDWFVKAAVSQEYADKWRAEVTPVTGKRLME 263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CKWGYKGVKSGET-----LSBEYFN----TRLPIVMKRIVQ 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Arabidopsis thaliana protein fragment SEQ ID NO: 66503.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAG52326 standard; protein; 305 AA
           99US-0154018P.
99US-015403P.
99US-0155139P.
99US-0155139P.
99US-0155488P.
99US-0155688P.
99US-0155688P.
99US-0155689P.
99US-0157733P.
99US-015733P.
99US-0158369P.
99US-015923P.
99US-015923P.
99US-015923P.
99US-015923P.
99US-015923P.
99US-015923P.
99US-015923P.
99US-015923P.
99US-016914P.
99US-016091P.
  -0153758P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            18-OCT-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
13-SEP-1999;
15-SEP-1999;
20-SEP-1999;
20-SEP-1999;
21-SEP-1999;
22-SEP-1999;
22-SEP-1999;
23-SEP-1999;
24-SEP-1999;
24-SEP-1999;
24-SEP-1999;
24-CCT-1999;
24-CCT-1999;
24-CCT-1999;
24-CCT-1999;
24-CCT-1999;
25-CCT-1999;
25-CCT-1999;
25-CCT-1999;
25-CCT-1999;
25-CCT-1999;
25-CCT-1999;
26-CCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 / Match
Local Simi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAG52326;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAGS2326
ID AAGS
XX
AC AAGS
XX
XX
DT 18-0
XX
XX
XX
XX Prot
XW Prot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query
  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠ
```

99US-0140823P. 99US-0140991P. 99US-0141287P.

```
28 - JUN - 1999;
29 - JUN - 1999;
30 - JUN - 1999;
01 - JUL - 1999;
02 - JUL - 1999;
06 - JUL - 1999;
09 - JUL - 1999;
12 - JUL - 1999;
      \mathbf{x} \in 
                                                                                                                                                                                                                                                                                                 990S-0121825P.
990S-0123180P.
990S-0125784P.
990S-0125784P.
990S-0126782P.
990S-0126782P.
990S-0128714P.
990S-0128714P.
990S-0130449P.
990S-0131448P.
990S-0131448P.
990S-0131448P.
990S-0131448P.
990S-0131448P.
990S-0131487P.
990S-0131488P.
990S-0131488P.
990S-0131488P.
990S-0131488P.
990S-0131488P.
990S-0139458P.
                                                                                                                                                                                                                                              2000EP-00301439
termination sequence
                                                         Arabidopsis thaliana
                                                                                                                                                                                                                                                                                              25-FEB-1999;
05-MAR-1999;
09-MAR-1999;
25-MAR-1999;
25-MAR-1999;
06-APR-1999;
06-APR-1999;
16-APR-1999;
12-APR-1999;
23-APR-1999;
                                                                                                                     EP1033405-A2
                                                                                                                                                                                                                                           25-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        23-JUN-1999;
23-JUN-1999;
24-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -APR-1999;
-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -JUN-1999;
                                                                                                                                                                               06-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1-NS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ę
```

990S-0141842P990S-0142154P990S-0142390P990S-0142390P990S-014292P990S-014292P990S-0144325P990S-0144331P990S-0144332P990S-0144332P990S-0144332P990S-0144332P990S-0144332P990S-0144332P990S-0144332P990S-0144332P990S-0144332P990S-0144332P990S-0144332P990S-0144332P990S-0144332P990S-0144332P990S-0144332P990S-0144332P990S-0144332P990S-014508P990S-0144334P990S-0145319P990S-0145319P990S-0145319P990S-0145319P990S-0145319P990S-0145319P990S-0145319P990S-0145319P990S-0145319P990S-0145319P990S-014532P990S-0149334P990S-0149334P990S-0149334P990S-0149338P990S-0149334P990S-0149338P990S-0149338P990S-0149338P990S-0149338P990S-0149338P990S-0149338P990S-0149338P990S-0149338P990S-0149338P990S-0149338P990S-0149338P990S-0149338P990S-0149338P990S-0149338P990S-0149338P990S-0149338P990S-0149338P-

```
180 ------SKYENFVDTIKNNYIVSDSNGYW-----NWKGAN-----PEDWI-EGAAVA 219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     189 REIILTALKENYDKNLDLLQEDLEKNITNGLWHDDLSSWTECNDLIACPHKYASESIKLA 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           49; Indels 51; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 6.2%; Score 94.5; DB 3; Length 305; Best Local Similarity 21.3%; Pred. No. 3.9; Matches 35; Conservative 29; Mismatches 49; Indels 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    220 AKODYPGVVNDTTKDWFVKAAVSQEYADKWRAEVTPVTGKRLME 263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 249 CKWGYKGVKSGET-----LSEEYFN----TRLPIVMKRIVQ 280
           9908-0154018P

9908-0154018P

9908-0155486P

9908-0155486P

9908-0155586P

9908-0155586P

9908-0155586P

9908-015773P

9908-015773P

9908-015773P

9908-0159294P

9908-0159310P

9908-0159310P

9908-0160740P

9908-0161361P

9908-0161361P
10-88P-1999;
13-8EP-1999;
16-8EP-1999;
22-8EP-1999;
22-8EP-1999;
22-8EP-1999;
23-8EP-1999;
24-6CT-1999;
06-6CT-1999;
06-6CT-1999;
06-6CT-1999;
13-6CT-1999;
14-6CT-1999;
14-6CT-1999;
14-6CT-1999;
14-6CT-1999;
12-6CT-1999;
12-6CT-1999;
12-6CT-1999;
12-6CT-1999;
13-6CT-1999;
14-6CT-1999;
15-6CT-1999;
16-6CT-1999;
17-6CT-1999;
18-6CT-1999;
   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           È
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    è
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
```

Search completed: July 27, 2004, 14:46:07 Job time : 56 secs

Page

```
\mathbf{r}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-341-538A-2
                 88 88.5
83.5
83.5
83.5
83.5
83
Sequence 10, Appl
Sequence 13, Appl
Sequence 1, Appli
Sequence 1, Appli
Sequence 7, Appli
Sequence 17709, A
Sequence 2, Appli
Sequence 2, Appli
Sequence 2, Appli
Sequence 259, Ap
Sequence 13160, A
Sequence 13160, A
Sequence 559, Ap
Sequence 559, Ap
Sequence 559, Ap
Sequence 569, Ap
Sequence 569, Ap
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 11, Appl
Sequence 4, Appli
Sequence 54, Appl
Sequence 32033, A
Sequence 14, Appl
Sequence 14, Appl
                                                                       July 27, 2004, 14:45:12 ; Search time 18 Seconds (without alignments) 808.807 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                        Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                  PCT-US03-12556-2
1522
1 MKKKVLALAAMVALAAPVQS........EAQRVTAGYIHLWFDTYVNR 282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                               Issued Patents AA:*

(cgn2_6/ptodata/2/iaa/5A_COMB.pep:*

(cgn2_6/ptodata/2/iaa/6A_COMB.pep:*

(cgn2_6/ptodata/2/iaa/6A_COMB.pep:*

(cgn2_6/ptodata/2/iaa/6B_COMB.pep:*

(cgn2_6/ptodata/2/iaa/PcTUS_COMB.pep:*

(cgn2_6/ptodata/2/iaa/PcTUS_COMB.pep:*
        GenCore version 5.1.6
(c) 1993 - 2004 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-725-518-2
US-08-725-518-2
US-08-491-954-4
US-08-282-1976-54
US-09-390-234-14
US-09-510-3234-14
US-09-510-3234-13
US-09-092-315-13
US-09-092-315-13
US-09-092-315-13
US-09-092-315-13
US-09-092-315-13
US-09-134-001C-3906
US-09-134-001C-4067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ·09-489-039A-13960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -09-543-681A-5068
-09-107-532A-5603
-09-543-681A-7453
                                                                                                                                                                                                                         Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-495-406-5
                                                                                                                                                                                                   389414 segs, 51625971 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SUMMARIES
                                                                                                                                                                                                                                                                                Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                   protein search, using sw model
                                                                                                                                                                  BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                 seq length: 0
seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query
Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               88.5
88.5
87.5
87.5
86.5
                                                                                                                                 Perfect score:
                                                                                                                                                                   Scoring table:
                                                                                                                                                                                                                                                 Minimum DB
Maximum DB
                                                   OM protein
                                                                                                                                              Sequence:
                                                                          Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Result
No.
```

```
86.5 5.7 664 3 18.09-145-072-2 Sequence 2, Appl. 19.09-145-072-2 Sequence 2, Appl. 19.09-145-072-2 Sequence 2, Appl. 19.09-145-072-3 Sequence
```

10;

54; Gaps

95; Indels

Conservative 40; Mismatches

68;

```
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ठे
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                          셤
                                                                                                                                                                                                                                               음
                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                               ò
                                         8
                                                                      용
                                                                                                                         ጵ
                                                                                                                                                                                                        ઠ
                                                                                                           | ||:|||| : :|| ||||| 64 LYQDHFWDPDTDNNFSKDNSWYLAYSIPDTGESQIRKFSALARYEWQRGNYKQATFYLGE 123
                                                                                                                                                                                               124 AMHYRGDIDTPYHPANVT--AVDSAGHVKFETFAEBRKEQYKINTAGCKTNEAFYTDILK 181
                                                                                   102 TYASHFYDPDTGTTYIP----FAKHAKETG----AKYFNLAGQAYQNQDMQQAFFYLGL 152
                                                                                                                                                                     SLHYLGDVNQPMHAANFTNLSYPMGFHSKYENFVDTIKNNYIVSDSNGYWN----- 203
                                                                                                                                                                                                                                                      -----WKGANPEDWIEGAAVAAKODYPGVVNDTIKDWFVKAAVSQEYAD-KWRAEVTPV 256
                                                                                                                                                                                                                                                                              182 NKDFNAMS----KEYARGFAKTGKSIY-----YSHASMSHSWDDMDYAAKVT-- 224
  EGINSHLWIVNRAIDIMSRNTTIVNPNET----ALLNEWRADLENGIYSADYENPYYDNS 101
                                 6 DGTGTHAMIVTQGVSILENDLSKNEPESVRKNLBILKENMHBLQLGSTYPDYDKNAYD-- 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14.5%; Score 220; DB 2; Length 370; 26.5%; Pred. No. 6.8e-14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
APPLICANT: TITRALL DR, RICHARD W
APPLICANT: TITRALL DR, RICHARD W
APPLICANT: WILLIAMSON DR, ETHEL D
TITLE OF INVENTION: CLOSTRIDIUM PERFRINGENS VACCINES
NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS:
ADDRESSE: NIXON & VANDERHYE
STREET: BEL FLOOR, 1100 NORTH GLEBE ROAD
CITY: ARLINGTON
STATE: VIRGINIA
COUNTRY: UNITED STATES
ZIP: 22201-4714
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OPERATING SYSTEM: PC-DOS/MS-DOS
GOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/725,518
FILING DATE: 4-0CT-96
FILING DATE: 4-0CT-96
FILING DATE: 24-0CT-96
FILING DATE: 28-NOV-1994
FILING DATE: 28-NOV-1994
FILING DATE: 20-MAY-1992
PRIOR APPLICATION NUMBER: BS 9210717.6
FILING DATE: 20-MAY-1992
PRIOR APPLICATION NUMBER: BS 9210717.6
FILING DATE: 20-MAY-1992
PRIOR APPLICATION NUMBER: WO GB93/01039
FILING DATE: 23-JUL-1992
PRIOR APPLICATION NUMBER: WO GB93/01039
FILING DATE: 20-MAY-1993
ATTONING NUMBER: WO GB93/01039
FILING DATE: 20-MAY-1993
ATTONING NAMER: NO GB93/01039
FILING DATE: 20-MAY-1993
ATTONING NAMER: PO-MAY-1993
ATTONING NAMERICED NUMBER: WO GB93/01039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME: CRAWFORD, ARTHUR R
REGISTRATION NUMBER: 25327
REFERENCE FOCKET NUMBER: 124-536
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 2, Application US/08725518 Patent No. 5851827
                                                                                                                                                                                                                                                                                                                                            257 TGKRLMEAQRVTAGYIH 273
                                                                                                                                                                                                                                                                                                                                                                    | :|: |||||:
----LANSQKGTAGYIY 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              : 370 amino acida
amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                      225
                                                                                                                                                                                                                                                        204
                                                                                                                                                                                                 쉱
                                                                                                                                                                                                                                                                                                윱
                                                                                                                                                                                                                                                                                                                                          ઠે
                                   용
                                                                                     δ
                                                                                                                    8 8
                                                                                                                                                                                                                                                      ò
```

```
143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             180 SKYENFVDTIKNNYIVSDSNGYW----NWKGAN----PEDWI-EGAAVAAKQDYPGVV 228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ENYDKNLDLLQEDLEKNITNGLWHDDLSSWTECNDLIACPHKYASESIKLACKWGYKGVK 228
                                                                                     102 TYASHPYDPDIGITYIP----PAKHAKEIG----AKYPNLAGQAYQNQDMQQAFPYLGL 152
                                                                                                                  SLHYLGDVNQPMHAANFINLSYPMGFHSKYRNFVDTIKNNYIVSDSNGYWN------ 203
                                                                                                                                                                                                                                                                                                     182 NKDFNAWS----KEYARGFAKTGKSIY-----YSHASMSHSWDDWDYAAKVT-- 224
46 EGINSHLWIVNRAIDIMSRNTTIVNPNET----ALLNEWRADLENGIYSADYENPYYDNS 101
                                                                                                                                                                                                               -----WKGANPEDWIEGAAVAAKQDYPGVVNDTTKDWFVKAAVSQEYAD-KWRAEVTPV 256
                          6 DGTGTHAMIVTQGVSILENDLSKNEPESVRKNLEILKENMHBLQLGSTYPDYDKNAYD-- 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6.3%; Score 96.5; DB 4; Length 276; 21.4%; Pred. No. 0.14; ve 31; Mismatches 67; Indels 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
APPLICANT: Fox Chase Cancer Center
APPLICANT: Fox Chase Cancer Center
TITLE OF INVENTION: Nucleic Acid Encoding a Mismatch
TITLE OF INVENTION: Endonuclease and Methods of Use Thereof
FILE REPRENCE: 9553dna
CURRENT APPLICATION NUMBER: US/09/510,322A
CURRENT PILING DATE: 2000-02-22
NUMBER OF SEQ ID NOS: 11
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     103 YASHFY---DPDTGTTYIPFAKHAKETGAKYFNLAGQAYQN-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                229 NDTTKDWFVKAAVSQEYADKWRAEVTPVTGKRLME 263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Girardeau, Jean-Pierre
Martin, Christine
Mechin, Marie-Claire
Der Vartanian, Maurice
Bousquet, Francois
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 4, Application US/08491954
Patent No. 6096221
GENERAL INFORMATION:
APPLICANT: Martin, Christine
APPLICANT: Martin, Marie-Claire
APPLICANT: Der Vartanian, Maurice
APPLICANT: Bousquet, Francois
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-510-322A-11
; Sequence 11, Application US/09510322A
; Patent No. 6391557
                                                                                                                                                                                                                                                                                                                                                                                                  | :|: |||||:
----LANSQKGTAGYIY 237
                                                                                                                                                                                                                                                                                                                                                                      257 TGKRLMBAQRVTAGYIH 273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        46; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM: Plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-510-322A-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-491-954-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                229
                                                                                                                                                                                                                                                                             204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
```

```
Sequence 32033, Application US/09252991A
; Batent No. 651795
; Batent No. 651795
; RENERAL INFORMATION:
; APPLICANT: Marc J. Rubenfield et al.
; TITLE OF INVENTION: ABEUGINOSA FOR DIAGNOSTICS AND THERAPBUTICS
; FILE REFERENCE: 107196.136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   257 PKSNAVFNMIKSMKERGVP----DGVGF-----QCHFINGMSPEYLASIDQNIKRYAEI 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      --AANFTNLSYPM-----GFHSKYENFVDTIKNNYIVSDSNGYWNWKGANPEDWIEG 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               308 GVIVSFTBIDIRIPQSENPATAFQVQANNYKELMKICLANPNCNTFVMMGFTDKYTWIPG 367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LILNEWRA-----DLENGIYSADYEN----PYYDNSTYASHFYDPDTGTTYIPF----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----AKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMH----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       19 OSVVFAQTNNSESPAPILRWSAEDKHNEG---INSHLWIVNRAIDIMSRNTTIVNPNETA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               64;
  Sequence 54, Application US/08282197C
Patent No. 5871730
GENERAL INFORMATION:
APPLICANT: Brazinski, Ryszard
APPLICANT: Dery, Claude V
APPLICANT: Beaulieu, Carolle
TITLE OF INVENTION: Thermostable Xylanase DNA, Protein and
TITLE OF INVENTION: Methods of Use
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 399;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ; Pred. No. 0.45; 35; Mismatches 109; Indels
                                                                                                                                                            NUMBER OF SECURICES: 67
CORRESPONDENCE ADDRESS:
ADDRESSE: Sterne, Kessler, Goldstein & Fox P.L.L.C.
STREET: 1100 New York Ave., NW
CITY: Washington
                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:

COMPUTER: Floppy disk

COMPUTER: IBM PC Compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patentin Release #1.0, Version #1.25

CURRENT APPLICATION NATA:

APPLICATION NUMBER: US/08/282,197C

FILING DATE: 29-JUL-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1050.0410000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 94;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              T-----FPGYGNPLIYD 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAWE: Cimbala, Michele A
REGISTRATION NUMBER: 33,851
REFRENCE/DOCKET NUMBER: 1050
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-371-2600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY: both

US-08-282-197C-54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INFORMATION FOR SEQ ID NO: 54:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      216 AAVAAKQDYPGVVNDTTKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity 19.78
Matches 51; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         202-371-2540
                                                                                                                                                                                                                                                                                              USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 6
US-09-252-991A-32033
                                                                                                                                                                                                                                                                                                               20002
                                                                                                                                                                                                                                                                                            COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
SUB-UNIT OF CS31A PROTEIN CAPSULE
MODIFIED BY AT LEAST ONE HETEROLOGGUS PEPTIDE, CS31A
PROTEIN CAPSULE INCLUDING SUCH A SUB-UNIT, AND
MICROORGANISMS WHOSE OUTER MEMBRANE CARRIES SUCH
SUB-UNITS, AND PROCEDURE FOR OBTAINING AND UTILIZING SUCH
SUB-UNITS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       51 HLWIVNRAIDIMSRNTTIVNPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYDP 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              111 DIGITYIPFAKHAKETG-----LAGQAYQ 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           114 FİSNİAMDIAVKVKNSĞDNTELGTLSVPLSFGAAVTIFDGNTTDSAVAHITSGSAĞTVFE 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   140 N-----QDMQQAFFYLGLS-LHYLGDVNQPMHAANFINLSYPMGFHSKYENFVDTIKN 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         174 GLVNPGRFTDQNIAYKWNGLSKAEMAGYVEKLMPGKSSTSYS---GFH----NWDDLSHP 226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          227 NYTSADKASYLSY------GSGVSAGST---LVMMLNKDVAGRLEWVAPVTITVIY 273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ---APILRWSAEDKHNEGINS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NYIVSDSNGYWNWKGANPEDWIEGAAVAAKQDYPGVVNDTTKD-----WFVKAAVSQBY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6.2%; Score 95; DB 3; Length 274; 21.3%; Pred. No. 0.2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                        SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA:
PILLIATION NUMBER: US/08/491,954
PILLING DATE: 16-FEB-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               40; Mismatches 115;
                                                                                                                                                                      SEE: WEISER & ASSOCIATES
: 230 South Fifteenth Street, Suite 500
Philadelphia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 MKKKVLALAAMVALAAPVQSVVFAQTNNSESP-----
                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 16-FEB-1996
CLASSIFICATION: 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/FR93/01281
FILING DATE: 21-DEC-1993
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       989.6264P
                                                                                                                                                                                                                                                                                                                                  COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  19,763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE/DOCKET NUMBER: 90
TELECOMMUNICATION INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           : 215-875-8383
215-875-8394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                : 274 amino acids amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME: Weiser, Gerard J. REGISTRATION NUMBER: 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: 215-875-8394
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                              TITLE OF INVENTION: PROTITION OF INVENTION: WICH TITLE OF INVENTION: SUB-TITLE OF INVENTION: SUB-NUMBER OF SEQUENCES: 115
CORRESPONDENCE ADDRESS:
ADDRESSEE: WEISER & AS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity 21.3
Matches 64; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY: linear
MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                       ZIP: 19102
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRANDEDNESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   246 A 246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S 274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 5
US-08-282-197C-54
                                                                                                                                                                                                                               STATE: PA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-491-954-4
                                                                                                                                                                                         STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
```

```
13
                                  셤
                                                                             ઠે
                                                                                                              g
                                                                                                                                                     ò
                                                                                                                                                                                    셤
                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           쉽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10,
                                                                                                                                                                                                                                                                                                                                                          342 APWQSASFDAETNTIIVGAGNPGP---WNTWARTAKGGNPHDYDSLYTSGQVGVDPSSGE 398
                                                                                                                                                                                                                                                                                                                                                                                                                            399 VKWFYQHTPNDAWDFSGNNELVLFDYKAKDGKIVKATA-----HADRNGFFYVVDRSNGK 453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |: || |: || |- || 454 LQNARPPVGREGGRPPLPEPGQKHGKAVEVSPPFLGGKNMNPM 513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      165 HAANFINLSYPMGFHSK--YENFVDTIKNNYIVSDSNGYWNWKGANPEDWIEGAAVAAKQ 222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            223 DYPGVVNDTTKDWFVKAAVSQEYADKWRAEV-----TPVTGKRLMEAQ-RVTAGY---I 272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 596 VFTG----TGDGYFKAFDAKSGKELWKFQTGSGIVSPPITWEQDGEQYLGVTVGYGGAV 650
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             108 -YDPDTGTTYIPFAKHAKETGAKYFNLAGQAYQNQDMQ--QAFFYLGLSLHYLGDVNQPM 164
                                                                                                                                                                                                                                                                                                                                                                                             52 -LWIV----NRAIDIMSRNTIIVNP-----NETALLNEWRADLENGIYSADYEN-- 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Blum, David L.
APPLICANT: Kataeva, Irina
APPLICANT: Li, Xin-Liang
APPLICANT: Li, Xin-Liang
APPLICANT: Li, Xin-Liang
APPLICANT: Li, Xin-Liang
APPLICANT: Li, Xin-Liang
TITLE OF INVENTION: Phenolic Acid Esterases, Coding Sequences and Methods
FILE REPERBNCE: 67-98
CURRENT APPLICATION NUMBER: US/09/390,234
CURRENT FILING DATE: 1999-09-03
EARLIER APPLICATION NUMBER: US 60/099,136
EARLIER APPLICATION NUMBER: US 60/099,136
SAFLIER PILING DATE: 1998-09-04
SOFTWARE: Patentin Ver: 2.0
SEQID NO 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               514 AYSQDIGLEYVP-ANHWKED------YWTEEVSYTKGSAYLG------
                                                                                                                                                                                                                                                                                     Gарв
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----PYYDNSTYASHF------
                                                                                                                                                                                                                                            Query Match 6.2%; Score 94; DB 4; Length 685; Best Local Similarity 20.9%; Pred. No. 1; Matches 76; Conservative 31; Mismatches 102; Indels 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 6.2%; Score 94; DB 4; Length 837; Best Local Similarity 19.7%; Pred. No. 1.4; Matches 51; Conservative 35; Mismatches 109; Indels
                                                                                                                                                                                                                                                                                                                       16 APVOSVVF-AQTN----NSESPAPILRWSAEDKHNBGINSH----
CURRENT APPLICATION NUMBER: US/09/252,991A
CURRENT FILING DATE: 1999-02-18
PRIOR APPLICATION NUMBER: US 60/074,788
PRIOR FILING DATE: 1998-02-18
PRIOR FILING DATE: 1998-07-27
PRIOR FILING DATE: 1998-07-27
NUMBER OF SEQ ID NOS: 33142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 7
U8-09-190-234-14
I Sequence 14, Application US/09390234
PRIENT No. 6365390
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: PRT ORGANISM: Clostridium thermocellum
                                                                                                                                                                    r TYPE: PRT / CRGANISM: Pseudomonas aeruginosa US-09-252-991A-32033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    273 HLW 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        651 PLW 653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-390-234-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         549
                                                                                                                                                                                                                                                                                                                                                        윰
                                                                                                                                                                                                                                                                                                                                                                                           È
                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
```

```
Sequence 14, Application US/09603311

Sequence 14, Application US/09603311

Sequence 14, Application US/09603311

Sequence 14, Application US/09603311

APPLICANT: Liungdahl, Lars G.
APPLICANT: Liungdahl, Lars G.
APPLICANT: Azain, Michael J.
APPLICANT: Blum, Davies Edward T.
APPLICANT: Blum, Davied L.
APPLICANT: Blum, Davied L.
APPLICANT: Blum, Davied L.
APPLICANT: Blum, Davied L.
APPLICANT: Blum, Davied L.
APPLICANT: Blum, Davied L.
APPLICANT: Blum, Davied L.
APPLICANT: Blum, Davied L.
APPLICANT: Brown WHEBE: US/09/603,311

CURRENT APPLICATION NUMBER: US/09/603,311

PRIOR FILING DATE: 1998-09-04

PRIOR FILING DATE: 1998-09-03

NUMBER OF SEQ ID NOS: 26

SOFTWARE PATENTIN VET. 2.0

SEQ ID NOS: 26

SEQ ID NO 14

FORCELL CANDON CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT CONTACT 
                                                                 696 PKSNAVFNMIKSMKERGVP----IDGVGF-----QCHFINGMSPEYLASIDQNIKRYAEI 746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    166 -- AANFTNLSYPM-----GFHSKYENFVDTIKONYIVSDSNGYWNWKGANPEDWIEG 215
QSVVFAQTNNSESPAPILRWSAEDKHNEG---INSHLWIVNRAIDIMSRNTTIVNPNETA 75
                                                                                                                                                                                                     76 LLNEWRA-----DLENGIYSADYEN----PYYDNSTYASHFYDPDTGTTYIPF----
                                                                                                                                                                                                                                                                             120 -----AKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMH----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            166 -- AANPINLSYPM-----GFHSKYENFVDTIKONYIVSDSNGYWNWKGANPEDWIEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   76 LLNEWRA-----DLENGIYSADYEN----PYYDNSTYASHFYDPDTGTTYIPF----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              120 -----AKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMH----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        19 QSVVPAQTNNSESPAPILRWSAEDKHNEG---INSHLWIVNRAIDIMSRNTTIVNPNETA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                64; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 6.2%; Score 94; DB 4; Length 837; Best Local Similarity 19.7%; Pred. No. 1.4; Matches 51; Conservative 35; Mismatches 109; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM: Clostridium thermocellum US-09-603-311-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     807 T-----FPGYGNPLIYD 818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            216 AAVAAKQDYPGVVNDTTKD 234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               216 AAVAAKQDYPGVVNDTTKD 234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  807 T-----FPGYGNPLIYD 818
```

S

```
8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                             14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         221 NVKNKNEFLSQYKFNLCFENTQGYGYVTEKIIDAYFSHTIPIYW----GSPSVAKDFNPK 276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       187 -- DTIKNNYIVSDSNGYW-----NWKGAN-----PEDWI-EGAAVAAKQDYPGVVNDTTK 233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           70 NPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYD-----PDTG-----TTYIP 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             119 FAKHAKETGAKY-FNLA-----GQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFTNL 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ch 6.0%; Score 91.5; DB 4; Length 372;
1 Similarity 26.2%; Pred. No. 0.72;
44; Conservative 29; Mismatches 64; Indels 31;
                                                                                                                                                                                                                                                                                                                                                                                                           70;
                           Sequence 10, Application US/09510322A

Patent No. 6391557

GENERAL INFORMATION:

APPLICANT: Fox Chase Cancer Center

TITLE OF INVENTION: Budonuclease and Methods of Use Thereof

FILE REPERENCE: 9503cha

CURRENT APPLICATION NUMBER: US/09/510,322A

CURRENT PILING DATE: 2000-02-22

NUMBER OF SEQ ID NOS: 11

SOFTWARE: FastSEQ for Windows Version 3.0

LENGTH: 275
                                                                                                                                                                                                                                                                                                                                                                                                                                             106 HFYD-POTGTTYIPFAKHAKE-TGAKYFNLAGQAYQNQDMQQAFFYLG----
                                                                                                                                                                                                                                                                                                                                                                 Query Match 6.1%; Score 93; DB 4; Length 275; Best Local Similarity 21.9%; Pred. No. 0.32; Matches 46; Conservative 31; Mismatches 63; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           152 -LSLHYLGDVNQPMH-----AANFTNL---SYPMGFHSKYENFV--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 13. Application US/09092315

Patent No. 6399337

GENERAL INPORMATION:
APPLICANT: Ga. Zhongming
TITLE OF INVENTION: ALPHA-1, 3-FUCOSYLTRANFERASE
TITLE REFERENCE: 07254/049001

CURRENT FAPLICATION NUMBER: US/09/092,315

CURRENT FILING DATE: 1998-06-05

EARLIER APPLICATION NUMBER: US 60/048,857

EARLIER APPLICATION NUMBER: US 60/048,857

SOFTWARE: PSECSEQ for Windows Version 3.0

SEQ ID NO 13

LERGITH: 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               234 DWFVKAAVSQEYADKWRAEVTPVTGKRLME 263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   233 -----LSDEYFN----SRMPIVMKRIAQ 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: PRT
ORGANISM: Helicobacter pylori
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local Similarity
Matches 44; Conserva
                                                                                                                                                                                                                                                                                       TYPE: PRT
ORGANISM: Plant
RESULT 9
US-09-510-322A-10
                                                                                                                                                                                                                                                                                                                   , UKGANATSKI, FAM.
US-09-510-322A-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-092-315-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-092-315-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ሯ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
```

```
; Sequence 1, Application US/09733524A
; Patent No. 6534298
; GENERAL INFORMATION:
; APPLICANT: Taylor, Diane E.
; APPLICANT: Taylor, Diane E.
; TITLE OF INVENTION: WUCLEIC ACIDS ENCODING ALPHA-1,3
TITLE OF INVENTION: EXPRESSING THEM (amended)
; TITLE OF INVENTION: EXPRESSING THEM (amended)
; FILE REFERENCE: 07254-099002
; CURRENT APPLICATION WUMBER: US/09/733,524A
; CURRENT APPLICATION WUMBER: US 09/092,315
; PRIOR APPLICATION NUMBER: US 09/092,315
; PRIOR PLING DATE: 1998-06-05
; PRIOR PLING DATE: 1998-06-05
; WUMBER OF SEQ ID NOS: 27
; NUMBER OF SEQ ID NOS: 27
; SOFTWARE: FRESSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           70 NPNETALLINEWRADLENGIYSADYENPYYDNSTYASHFYD-----PDTG----TTYIP 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  119 FAKHAKETGAKY-FNLA-----GQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFTNL 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               31,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          31;
                            277 SP-VNVHD-FKNFDEAIDYIK--YLHTHKNAYLDMLYENPLNTLDGKA 320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 173 SYPMGFHSKYENF---VDTIKNNYIVSDSNGYWNWKGANPEDWIEGAA 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6.0%; Score 91.5; DB 4; Length 464; 26.2%; Pred. No. 1; tive 29; Mismatches 64; Indels 3:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 464;
173 SYPMGFHSKYENF --- VDTIKNNYIVSDSNGYWNWKGANPEDWIEGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          64; Indels
                                                                                                                                                                                                                                          APPLICANT: TAYLOT, Diane B.
APPLICANT: TAYLOT, Diane B.
TITLE OF INVENTION: ALPHA-1, 3-FUCOSYLTRANFERASE
FILE REFERENCE: 07254/049001.
CURRENT APPLICATION NUMBER: US/09/092,315
CURRENT FILING DATE: 1999-06-05
EARLIER FILING DATE: 1997-06-06
NUMBER OF SEQ ID NOS: 22
SOFTWARE: FastSEQ for Windows Version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
6.0%; Score 91.5; DB 4;
Best Local Similarity 26.2%; Pred. No. 1;
Matches 44; Conservative 29; Mismatches 64;
                                                                                                                                                                        ; Sequence 1, Application US/09092315; Patent No. 6399337; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; ORGANISM: Helicobacter pylori
US-09-092-315-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: PRT
ORGANISM: Helicobacter pylori
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Local Similarity 26.29
Matches 44; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-733-524A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      464
                                                                                                                                                   US-09-092-315-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQ ID NO 1
```

6.0%; Score 91.5; DB 4; Length 478; 26.2%; Pred. No. 1.1; tive 29; Mismatches 64; Indels 3:

ဖ

```
Search completed: July 27, 2004, 14:48:18
Job time : 19 secs
 ; ORGANISM: Helicobacter pylori
US-09-733-524A-7
                                                     Best Local Similarity 26.24
Matches 44; Conservative
                                          Query Match
                                                                                              ð
                                                                                                                   셤
                                                                                                                                                  ઠે
                                                                                                                                                                          셤
                                                                                                                                                                                                     ò
                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ଚ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10;
                NPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYD-----PDTG----TTYIP 118
                                                    119 FAKHAKETGAKY-FNLA-----GQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFTNL 172
                                                                     119 FAKHAKETGAKY-FNLA-----GQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFTNL 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               221 NVKNKNBFLSQYKFNLCFENTQGYGYVTEKIIDÀYFSHTIPIYW----GSPSVAKDFNPK 276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ch 6.0%; Score 91.5; DB 4; Length 478;
1 Similarity 26.2%; Pred. No. 1.1;
44; Conservative 29; Mismatches 64; Indels 31;
                                                                                                                         277 SF-VNVHD-FKNFDEAIDYIK--YLHTHKNAYLDMLYENPLNTLDGKA 320
                                                                                                        SYPMGFHSKYENF --- VDTIKNNYIVSDSNGYWNWKGANPEDWIEGAA 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         173 SYPMGFHSKYENF---VDTIKNNYIVSDSNGYWNWKGANPEDWIEGAA 217
                                                                                                                                                                                               Sequence 7, Application US/09092315
Patent No. 639937
GENERAL INFORMATION:
APPLICANT: Taylor, Diane E.
APPLICANT: Taylor, Diane E.
TITLE OF INVENTION: ALPHA-1, 3-FUCOSYLTRANFERASE
FILE REPERENCE: 07254/04901
CURRENT FILING DATE: 1999-06-05
EARLIER PILING DATE: 1999-06-05
NUMBER OF SEQ ID NOS: 22
SOFTWARE FEASTER FILING DATE: 1997-06-06
NUMBER OF SEQ ID NOS: 22
SOFTWARE FEASTER FOR MINDOWS Version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  70 NPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYD-
                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: PRT
ORGANISM: Helicobacter pylori
US-09-092-315-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
Matches 44; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-733-524A-7
                                                                                                        173
                      셤
                                                  ò
                                                                             유
                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
```

```
## Sequence 17709, Application US/09252991A
## Sequence 17709, Application US/09252991A
## Sequence 17709, Application US/09252991A
## PAPLICANT: Marc J. Rubenfield et al.
## TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PSEUDOMONAS
## TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPBUTICS
## TITLE OF INVENTION: AERUGINOSA FOR DIAGNOSTICS AND THERAPBUTICS
## TITLE OF INVENTION: UNGBER: US/09/252,991A
## CURRENT FILING DATE: 1999-02-18
## CURRENT FILING DATE: 1999-02-18
## PRIOR FILING DATE: 1998-02-18
## PRIOR FILING DATE: 1998-07-27
## PRIOR FILING DATE: 1998-07-27
## NUMBER OF SEQ ID NOS: 33142
## SEQ ID NO 17709
## LENGTH: 503
70 NPNETALLINEWRADLENGIYSADYENPYYDNSTYASHPYD-----PDTG-----TTYIP 118
                                                 119 FAKHAKETGAKY-FNLA-----GQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFTNL 172
                                                                                                                                                                            221 NVKNKNEFLSQYKFNLCFENTQGYGYVTEKIIDAYFSHTIPIYW----GSPSVAKDFNPK 276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                357 KALLGYPEEKQAAIERVANRHTAVEKYQF-DWLRQLLRDGRPQPMLDAYADTRRDGAYPA 415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      297 PEWRAYQYFGLSRFAFANGHPYMGYRFLGMGMHYIQDITQPYHSTPLPGASLAAMLQMEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  176 ---MGFHSKYENFVDTIKNNYIVSDSNGYWNW----KGANPEDWIEGAAVAAKQD-YPG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       70 NPNETALLNEWRADLENGIYSADYENPYYDNSTYASH---FYDPDTGTTY--IPFAKHA-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            124 -KETGAKYFNIAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFTNLSYP----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             35,
                                                                                                                                                                                                                                                                                                           173 SYPMGFHSKYENF---VDTIKNNYIVSDSNGYWNWKGANPEDWIEGAA 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match 6.0%; Score 91.5; DB 4; Length 503; Best Local Similarity 20.3%; Pred. No. 1.1; Matches 42; Conservative 37; Mismatches 93; Indels 3:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16 YSPTYLRD--VVAAESNAHAAAFDAAI 440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    227 VVNDTTKDWFVKAAVSQEYADKWRAEV 253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM: Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 15
US-09-252-991A-17709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; ORGANISM: FBCUCON
US-09-252-991A-17709
```

```
July 27, 2004, 14:46:13; Search time 47 Seconds (Without alignments) 1878.925 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                           PCT-US03-12556-2
1522
1 MKKKVLALAAMVALAAPVQS:.......EAQRVTAGYIHLWFDTYVNR 282
                                                                                                                                                                                                                                                                                                                                                                                                                  GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd.
                                                                                                                                                                                                                                                                               Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                     1288442 seqs, 313154207 residues
                                                                                                                                                                                                                                                                                                                                                         Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                       OM protein - protein search, using sw model
                                                                                                                                                                                                       BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                               seq length: 0
seq length: 200000000
                                                                                                                                             Title:
Perfect score:
                                                                                                                                                                                                         Scoring table:
                                                                                                                                                                                                                                                                                                               Minimum DB e
Maximum DB e
                                                                                                                                                                            Sequence:
                                                                                                                                                                                                                                                     Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                        Database
                                                                                    Run on:
```

Sequence 2, Appli Sequence 4, Appli Sequence 4, Appli Sequence 6, Appli Sequence 90, Appl Sequence 91, Appl Sequence 32, Appl Sequence 106, App Sequence 73670, A Sequence 10, Appl Sequence 2, Appl Sequence 2, Appl Sequence 2, Appl Sequence 2, Appl Sequence 2, Appli Sequence 2, Appli Sequence 2, Appli Sequence 2, Appli Description S US-10-421-654-2 5 US-10-369-493-16747 5 US-10-421-654-4 5 US-10-421-654-82 5 US-10-421-654-90 5 US-10-421-654-90 5 US-10-421-654-90 5 US-10-421-654-90 5 US-10-421-654-90 6 US-10-421-654-90 7 US-10-421-654-90 7 US-10-421-639-239481 7 US-09-858-525A-10 10S-09-858-525A-10 2 US-10-424-599-219446 US-09-733-524-17 SUMMARIES Query Match Length DB 1252 1257.5 1206.32 1206.32 522 522 501 501 108.5 108.5 96.5 96.5 Result

	Sequence 13, Appl Sequence 1, Appli Sequence 1, Appli Sequence 1, Appli Sequence 1, Appli		Sequence 47689, A Sequence 4171, Ap Sequence 239478, Sequence 120169,	Sequence 70739, A Sequence 39, Appl Sequence 2, Appli Sequence 5, Appli Sequence 269, Appl	Sequence 43305, A Sequence 1, Appli Sequence 4, Appli Sequence 191038, Sequence 20, Appl Sequence 249, Appl Sequence 249, Appl Sequence 211603,
US-10-282-122A-55192 US-10-067-385-6 US-09-769-744A-28 US-10-424-599-264682	US-10-120-319-13 US-10-120-319-1 US-10-189-977-1 US-10-392-098-1	US-10-120-319-7 US-10-189-977-7 US-10-392-098-7 US-10-369-493-13784	US-10-282-122A-47689 US-10-369-493-4171 US-10-424-599-239478 US-10-437-963-120169	US-10-282-122A-70739 US-10-383-930-39 US-09-843-007-2 US-10-705-195-5 US-10-174-693-269	US-10-282-122A-43305 US-09-733-524-1 US-10-381-596A-4 US-10-437-963-191038 US-10-282-122A-77188 US-10-637-544-20 US-10-474-776-249 US-10-424-599-211603
25017					
787 664 2119 134	0 6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	478 478 478 802	584 934 270 328	721 1365 636 636 636	866 501 517 887 894 1786 1659
4666	90000	0000	ი ი ი ი ი ი ი ი	ບບບບບບ ບັບບົບໝົ	ოო. დ. ფ. ფ. ფ. ფ. ფ. ფ. ფ. ფ. ფ. ფ. ფ. ფ. ფ.
93.5 93.5 92.5	91.5	91.5 91.5 91.5	90.09 80.09 90.09	90 90 89 .5	88 88.5 88.5 88.5 88.5 88.5 7.8
11 11 11 11 11 11 11 11 11 11 11 11 11	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	25 27 28 28	32 32 32	33 33 33 33 34 35 35 35 35 35 35 35 35 35 35 35 35 35	₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩

ALIGNMENTS

61 IMSRNTTIVNPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYDPDTGTTYIPFA 120 9 9 Sequence 2, Application US/10421654

Publication No. US20040005604A1

GENERAL INFORMATION:

APPLICANT: Gramatikova, Svetlana
APPLICANT: Hazlewood, Geoff
APPLICANT: Lam, David E.

APPLICANT: Barton, Nelson R.

TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
TITLE OF INVENTION: PHOSPHOLIPASES AND
TITLE OF INVENTION: PHOSPHOLIPASES AND
TITLE OF INVENTION: PHOSPHOLIPASES AND
TITLE OF INVENTION: PHOSPHOLIPASES AND
TITLE OF INVE 1 MKKKVLALAAMVALAAPVQSVVFAQTNNSESPAPILIRWSAEDKHNEGINSHLMIVNRAID 1 MKKKVLALAAMVALAAPVQSVVFAQTNNSESPAPILRWSAEDKHNEGINSHLWIVNRAID ö Query Match 100.0%; Score 1522; DB 15; Length 282; Best Local Similarity 100.0%; Pred. No. 1.9e-139; Matches 282; Conservative 0; Mismatches 0; Indels 0; FEATURE: OTHER INFORMATION: Obtained from an environmental sample ; NAME/KEY: SIGNAL ; LOCATION: (1)...(24) US-10-421-654-2 TYPE: PRT ORGANISM: Unknown

ઠે 셤 δ

g

ò

셤

ò

ð

```
61 IMSRNTTIVNPNETALLINEWRADLENGIYSADYENPYYDNSTYASHFYDPDTGTTYIPFA 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61 IMSQNTTVVKQNETALLINEWRIDLEKGIYSADYENPYYDNSTPASHPYDPDSGKTYIPPA 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121 KHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFTNLSYPMGFHS 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 6, Application US/10421654;
Sequence 6, Application US/10421654;
Publication No. US20040005604A1

GENERAL INFORMATION:
APPLICANT: Gramatikova, Svetlana
APPLICANT: Lam, David E.
APPLICANT: Lam, David E.
APPLICANT: Barton, Nelson R.
TITLE OP INVENTION: METHODS FOR MAKING AND USING THEM AND
TITLE OP INVENTION: METHODS FOR MAKING AND USING THEM
CURRENT FILING DATE: 2003-04-21
CURRENT FILING DATE: 2003-04-21
FRIOR APPLICATION NUMBER: US/10/421,654
CURRENT FILING DATE: 2002-04-19
NUMBER OF SEQ ID NOS: 106
SOFTWARE: FastSEQ for Windows Version 4.0
                  APPLICANT: Gramatikova, Svetlana
APPLICANT: Hazlewood, Geoff
APPLICANT: Hazlewood, Geoff
APPLICANT: Hazlewood, Geoff
APPLICANT: Larten, David E.
TAPLICANT: Larten, David E.
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
TITLE OF INVENTION: PRETHOLS FOR MAKING AND USING THEM
FILE REPERENCE: 09010-094001,
CURRENT APPLICATION NUMBER: US/10/421,654
CURRENT FILING DATE: 2003-04-21
PRIOR APPLICATION NUMBER: US/03/4,313
PRIOR APPLICATION NUMBER: US 60/374,313
PRIOR RELING DATE: 2002-04-19
NUMBER OF SEQ ID NOS: 106
SOFTWARE: FastSEQ for Windows Version 4.0
LENGTH: 283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 MKKKVLALAAMVALAAPVQSVVFAQTNNSESPAPILRWSAEDKHNEGINSHLWIVNRAID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KYENFVDTIKNNYIVSDSNGYMNWKGANPEDWIEGAAVAAKQDYPGVVNDTTKDWFVKAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 80.9%; Score 1232; DB 15; Length Best Local Similarity 76.5%; Pred. No. 3e-111; Matches 215; Conservative 35; Mismatches 31; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OTHER INFORMATION: Obtained from an environmental sample
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           241 VSODSADKWRAEVTPITGKRLMEAQRVTAGYIHLWFDTYVN 281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; NAME/KEY: SIGNAL
; LOCATION: (1) ... (24)
US-10-421-654-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQ ID NO 6
LENGTH: 280
TYPE: PRT
ONGANISM: Unknown
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM: Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ሯ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 16747, 4, Application US/10369493
Foblication No. US20030233675A1
GENERAL INFORMATION:
GENERAL INFORMATION:
FAPPLICANT: Cao, Yongwei
APPLICANT: Cao, Yongwei
APPLICANT: Gladman, Barry
APPLICANT: Gladman, Barry
APPLICANT: Gladman, Barry
APPLICANT: Gladman, Barry
APPLICANT: Gladman, Barry
APPLICANT: Gladman, Barry
APPLICANT: Gladman, Barry
APPLICANT: Gladman, Barry
APPLICANT: Gladman, Barry
APPLICANT: Gladman, Barry
APPLICANT: Gladman, Barry
APPLICANT: Gladman, Barry
APPLICANT: Gladman, Barry
APPLICANT: Gladman, Barry
APPLICANT: Gladman, Barry
APPLICANT: Gladman, Barry
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPLICANT: Alanfang
APPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181 SKYENFVDTIKDNYKVTDGNGYMNWKGTNPEDWIHGAAVVAKQDYAGIVNDNTKDWFVRA 240
181 KYENFVDTIKONYIVSDSNGYWNWKGANPEDWIEGAAVAAKQDYPGVVNDTTKDWFVKAA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DIMSRNITIVNPNETALLNEWRADLENGIYSADYENPYYDNSIYASHFYDPDIGITYIPF 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120 AKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFTNLSYPMGFH 179
                                                                                                                                                                             121 KHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFTNLSYPMGFHS 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                    KYENPUDTIKNNY IVSDSNGYMNWKGANPEDMIEGAAVAKQDYPGVVNDTTKDWFVKAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      180 SKYENFUDTIKNNYIVSDSNGYWNWKGANPEDWIEGAAVAAKODYPGVVNDTTKDWFVKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 MKKKVLALAAMVALAAPVQSVVFAQTNNSESPAPIL-RWSAEDKHNEGINSHLWIVNRAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     82.6%; Score 1257.5; DB 15; Length 397; 80.2%; Pred. No. 1.6e-113;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241 AVSQEYADKWRAEVTPMTGKRLMDAQRVTAGYIQLWFDTYGNR 283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AVSOEYADKWRAEVTPVTGKRLMEAQRVTAGYIHLWFDTYVNR 282
                                                                                                                                                                                                                                                                                                                                                                                             241 VSQEYADKWRAEVTPVTGKRLMEAQRVTAGYIHLWFDTYVNR 282
                                                                                                                                                                                                                                                                                                                                                                                                                                      241 VSOEYADKWRAEVTPVTGKRLMEAQRVTAGYIHLWFDTYVNR 282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               32;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURE:
NAME/KEY: unsure
LOCATION: (1)..(397)
OTHER INFORMATION: unsure at all Xaa locations
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       23, Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 3
US-10-421-654-4
) Sequence 4, Application US/10421654
) Publication No. US20040005604A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM: Bacillus thuringiensis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity 80.24
Matches 227; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-369-493-16747
                                                                                                               121
                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
```

셤 ઠે 셤 ઠે a ઠે 셤 ઠે

9

Gaps

ö

```
119 IDGLIRGGWKSHFYDPDTRRXYY----KGEBEPTALSQGDKYFKLAGGSYFKKGDQKQAFYY 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           33.8%; Score 515; DB 15; Length 47: 38.7%; Pred. No. 3.2e-41; Artive 42; Mismatches 106; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
OTHER INFORMATION: Obtained from an environmental sample
                                                                                                                                                                                                                                                                                                               Sequence 90, Application US/10421654; Publication No. US20040005604A1; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |||:||||| |:|
TAGFIHLWFKTFV 302
                                                                                                                                                                                           TAGYIHLWFDTYV 280
                                                                                                                                                                                                             |||:||||| |:|
290 TAGFIHLWFKTFV 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TAGYIHLWFDTYV 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches 121; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; NAME/KEY: SIGNAL
; LOCATION: (1)...(25)
US-10-421-654-90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: PRT
ORGANISM: Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQ ID NO 90
                                                    150
                                                                                                                                                                                           268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          290
                                                 Š
                                                                               요
                                                                                                                8
                                                                                                                                                    셤
                                                                                                                                                                                           δ
                                                                                                                                                                                                                        원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                177 SKYENFVDIVKDNYRVIDGDGYWNWKSANPEEWVHASASAAKADFPSIVNDNIKSWFLKA 236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DIMSRNTTIVNPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYDPDTGTTYIPF 119
                                                                                                                                                                                                                                                                                                                   AKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFTNLSYPMGFH 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SHLWIVNRAIDIMSRN-TTIVNPNETALLN--EWRADLENGIYSADYENPYYDNST---- 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            103 -----YASHFYDPDTGTTYIPFAKHAKE----TGAKYFNLAGQAYQNQDMQQAFFY 149
                                                                                                                                                                                                           26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MKKKVLALAAMVALAAPVQSV-----VFAQTNNSESPAPILRWSAEDKHNEGIN 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-41-654-82

Sequence 82, Application US/10421654

Sequence 82, Application US/10421654

Publication No. US20040005604A1

GENERAL INFORMATION:
APPLICANT: Gramatikova, Svetlana
APPLICANT: Hazlewood, Geoff
APPLICANT: Barton, Nelson R.
TITLE OF INVENTION: PROSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
TITLE OF INVENTION: PREPROSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM
FILE REFERENCE: 09010-094001

CURRENT FILING DATE: 2003-04-21

PRIOR PILING DATE: 2003-04-21

PRIOR PLLING DATE: 2002-04-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 MKKKVLALAAMVALAAPVQSVVFAQTNNSESPAPI-LRWSAEDKHNEGINSHLWIVNRAI
                                                                                                                                                                                                                                                                                                                                                                                      SKYENFUDTIKNNYIVSDSNGYMNWKGANPEDWIEGAAVAAKQDYPGVVNDTTKDWFVKA
                                                                                                                                        2
                                                                                                         DB 15; Length 280;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             34.3%; Score 522; DB 15; Length 473; 38.7%; Pred. No. 6.7e-42; tive 43; Mismatches 105; Indels 4
                                                                                                     Query Match 79.3%; Score 1206.5; DB 15; Lengt Best Local Similarity 76.2%; Pred. No. 8.9e-109; Matches 215; Conservative 34; Mismatches 28; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             237 AVSQDSADKWRAEVTPVTGKRLMEAQRITAGYIHLWFDTYVN 278
   OTHER INFORMATION: Obtained from an environmental sample
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OTHER INFORMATION: Obtained from an environmental sample
                                                                                                                                                                                                                                                                                                                                                                                                                                                             AVSQEYADKWRAEVTPVTGKRLMEAQRVTAGYIHLWFDTYVN 281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQ ID NOS: 106
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity 38.77
Matches 121; Conservative
                                ; NAME/KEY: SIGNAL
; LOCATION: (1)...(24)
US-10-421-654-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ) NAME/KEY: SIGNAL
) LOCATION: (1) ... (25)
US-10-421-654-82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: PRT
ORGANISM: Unknown
                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                              57
                                                                                                                                                                                                                                                                                                                   120
                                                                                                                                                                                                                                                                                                                                                                                        180
                                                                                                                                                                                                                                                                                                                                                                                                                                                             240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20
                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

LGLSLHYLGDVNQPMHAANFTNL-SYPMGFHSKYENFVDTIKNNYIVSDSNGYWNWKGAN 208 209 -PEDWIEGAAVAAKQDYPGVVNDTTKDWFVKAAVSQEYADKWRAEVTPVTGKRLMEAQRV 267 50 SHLWIVNRAIDIMSRN-TTIVNPNETALLN--EWRADLENGIYSADYENPYYDNST---- 102 103 -----YASHFYDPDTGTTYIPFAKHAKE----TGAKYFNLAGQAYQNQDMQQAFFY 149 119 IDGLIKGGWKSHFYDPDTRROYY----KGEEEPTALSQGDKYFKLAGDYFKKEDWKQAFYY 174 LGLSLHYLGDVNOPMHAANFTNL-SYPMGFHSKYENFVDTIKNNYIVSDSNGYWNWKGAN 208 209 - PEDWIEGAAVAAKODYPGVVNDTTKDWFVKAAVSOEYADKWRAEVTPVTGKRLMEAORV 267 235 DPKQWIHETARLAKVEIGNITNDEIKSHYNKGNNA----LWQQEVMPAVQRSLENAQRN 289 1 MKKKVLALA----AMVALAAPVQS-----VVFAQTNNSESPAPILRWSAEDKHNEGIN 49 APPLICANT: Hazlewood, Geoff
APPLICANT: Hazlewood, Geoff
APPLICANT: Hazlewood, Geoff
APPLICANT: Hazlewood, Geoff
APPLICANT: Hazlewood, Geoff
APPLICANT: Barton, Nelson R.
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
TITLE OF INVENTION: WHENENS FOR MAKING AND USING THEM
FILE REFERENCE: 10910-094001
CURRENT APPLICATION NUMBER: US/10/421,654
CURRENT FILING DATE: 2003-04-21
PRIOR PILING DATE: 2002-04-19
NUMBER OF SEQ ID NOS: 106
SOFTWARE: FastSEQ for Windows Version 4.0 44; Gaps Length 473;

```
; LOCATION: (1)...(30)
US-10-421-654-106
                                                                                                  TYPE: PRT
                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     103 -----YASHFYDPDTGTTYIPFAKHAKE----TGAKYFNLAGQAYQNQDMQQAFFY 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        119 IDGLIRGGWKSHFYDPDTRKNY----KGEEFTALSQGDKYFKLAGEYFKKNDWKQAFYY 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LGLSLHYLGDVNQPMHAANFINLS-YPMGFHSKYENFVDTIKNNYIVSDSNGYWNWKGAN 208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 235 DPKQWIHETARLAKVEIGNITNDVIKSHYNKGNNA----LWQQEVMPAVQRSLEQAQRN 289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        50 SHIMIVNRAIDIMSRN-TTIVNPNETALLN--EWRADLENGIYSADYENPYYDNST---- 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       209 - PEDWIEGAAVAAKODYPGVVNDTTKDWFVKAAVSQEYADKWRAEVTPVTGKRLMEAQRV 267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 MKKKVLALAAMVALAAPVQSV-----VFAQTNNSESPAPILRWSAEDKHNEGIN 49
MASING APPLICATION WON 10421654

PUBLICANT: US20040005604A1

GENERAL INFORMATION:
APPLICANT: HAZIEwood, Geoff
APPLICANT: HAZIEwood, Geoff
APPLICANT: Lam, David E.
APPLICANT: Lam, David E.
APPLICANT: Lam, David E.
TITLE OF INVENTION: METHODS FOR MAXING AND USING THEM TITLE OF INVENTION: METHODS FOR MAXING AND USING THEM FILE OF INVENTION: METHODS FOR MAXING AND USING THEM FILE OF INVENTION: METHODS FOR MAXING AND USING THEM FILE PRILING DATE: 2003-04-21
FRICK REPERENCE: 09010-0904001
CURRENT APPLICATION NUMBER: US 60/374,313
FRIOR APPLICATION NUMBER: US 60/374,313
FRIOR APPLICATION NUMBER: US 60/374,313
FRIOR FILING DATE: 2003-04-10
SOUTHARE FEACESQ for Windows Version 4.0
SEQ ID NO 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 32, Application US/10421654
Publication No. US20040005604A1
GENERAL INFORMATION
GENERAL INFORMATION
APPLICANT: Gramatikova, Svetlana
APPLICANT: Hazlewood, Geoff
APPLICANT: Lam, David E.
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
FILE REFERENCE: 09010-09401
CURRENT APPLICATION NUMBER: US/10/421,654
CURRENT FILING DATE: 2003-04-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
33.4%; Score 509; DB 15; Length 473;
Best Local Similarity 37.8%; Pred. No. 1.2e-40;
Matches 119; Conservative 43; Mismatches 109; Indels 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OTHER INFORMATION: Obtained from an environmental sample
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | FEATURE:
| NAME/KEY: SIGNAL
| LOCATION: (1)...(25)
| US-10-421-654-98
                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: PRT
ORGANISM: Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-421-654-32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠ
```

```
50 SHLWIVNRAIDIMSRN-TTIVNPWETALLN--EWRADLENGIYSADYENPYYDNST---- 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                119 IDGLIKGGWKSHFYDPDTKKNY----KGEBEPTALSQGDKYFKLAGDYFKKEDWKQAFYY 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   150 LGLSLHYLGDVNQPMHAANFTNLSY-PMGFHSKYENFVDTIKNNYIVSDSNGYWNWKGA- 207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 208 NPEDWIEGAAVAAKODYPGVVNDTTKDWFVKAAVSQEYADKWRAEVTPVTGKRLMEAQRV 267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             103 -----YASHFYDPDTGTTYIPPAKHAKE----TGAKYFNLAGQAYQNQDMQQAFFY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 106, Application US/10421654
| Publication No. US20040005604A1
| GENERAL INFORMATION:
| APPLICANT: Gramatikova, Svetlana |
| APPLICANT: Hazlewood, Geoff |
| APPLICANT: Hazlewood, Geoff |
| APPLICANT: Barton, David E. |
| APPLICANT: Barton, PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND |
| TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM APPLICANT: Barton, NUMBER: US/10/421,654 |
| CURRENT APPLICATION NUMBER: US/10/421,654 |
| CURRENT PLING DATE: 2003-04-21 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR APPLICATI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MKKKVLALAAMVALAAPVQSV------VFAÇTNNSESPAPILRWSAEDKHNEGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 473;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       32.9%; Score 501; DB 15; Length 47 36.5%; Pred. No. 7.4e-40; tive 49; Mismatches 107; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OTHER INFORMATION: Obtained from an environmental sample
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OTHER INFORMATION: Obtained from an environmental sample
PRIOR APPLICATION NUMBER: US 60/374,313
PRIOR FILING DATE: 2002-04-19
NUMBER OF SEQ ID NOS: 106
SEQ ID NO 32
LENGTH: 473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              268 TAGYIHLWFDTYVNR 282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             290 TAGFIHLWFKTYVGK 304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local Similarity 36.5% Matches 115; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; FEATURE:
; NAME/KEY: SIGNAL
; LOCATION: (1)...(20)
US-10-421-654-32
                                                                                                                                                                                                                                                                                                                                                                           ORGANISM: Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM: Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME/KEY: SIGNAL
```

S

US-10-282-122A-73670

```
12;
                                                                                                                                                                                                                                                                                                                                      61 IMSRNTTIVNPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYDPDTGTTY-IPF 119
                                                                                                                                                                                                                                                                                                        120 AKHAKE---TGAKYFNLAG----QAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFT 170
                                                                                                                                                                                                                                                                                                                                                                                                        171 NLSYPMGFHSKYENFVDTIKNNYIVSDSNGYMNWKG------ANPEDWIEGAAV 218
                                                                                                                                                                                                                                                                                                                                                                                                                                        147 NGVYHQGNLTEFDNF------EFMGLSNWKPSFADINRTDPGYADPSRYYEFSRD 195
                                                                                                                                                                                                                                    10 LQLRAVTVAALVVVAS------SAALAWDSASR-NPTHPTHSYLTEYALD 52
                                                                                                    1 MKKKVLALAAMVALAAPVQSVVFAQTNNSESPAPILRWSAEDKHNEGINSHLMIVNRAID 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Xu, H.
TITLE OF INVENTION: Identification of Essential Genes in Microorganisms
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             219 AAKQDYPGV--VNDTTKDWFVKAAVSQEYADKWRAEVTPVTGKRLMEAQRVTAG 270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          196 WTAADAPGYRDRDSFSKTWVLASPAERQLLQNRQGRTATVAMWALRSATKAFAG 249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   - See File Wrapper or PALM
  DB 15; Length 251;
                                                     Indels
7.9%; Score 120; DB 15; I 20.4%; Pred. No. 0.0035; Live 48; Mismatches 108;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILE REFERENCE: ELITRA.034A
CURRENT APPLICATION NUMBER: US/10/282,122A
CURRENT FILING DATE: 2003-02-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR FILING DATE: 2001-02-09
PRIOR APPLICATION NUMBER: 60/269,308
PRIOR FILING DATE: 2001-02-16
Remaining Prior Application data removed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 73670, Application US/10282122A Publication No. US20040029129A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR PRILING DATE: 2000-03-21
PRIOR FILING DATE: 2000-03-21
PRIOR PELING DATE: 2000-03-21
PRIOR PELING DATE: 2000-05-23
PRIOR PELICATION NUMBER: 60/206,848
PRIOR PELING DATE: 2000-05-26
PRIOR PELING DATE: 2000-05-66
PRIOR PELING DATE: 2000-09-06
PRIOR PELING DATE: 2000-09-06
PRIOR PELING DATE: 2000-09-09
PRIOR PELING DATE: 2000-09-09
PRIOR PELING DATE: 2000-10-23
PRIOR APPLICATION NUMBER: 60/245,578
PRIOR APPLICATION NUMBER: 60/253,625
PRIOR PELING DATE: 2000-11-27
PRIOR PELING DATE: 2000-11-27
PRIOR PELING DATE: 2000-11-27
PRIOR PELING DATE: 2000-11-27
PRIOR PELING DATE: 2000-11-27
PRIOR PELING DATE: 2000-11-27
PRIOR PELING DATE: 2000-11-27
PRIOR PELING DATE: 2000-11-27
PRIOR PELING DATE: 2000-11-27
PRIOR PELING DATE: 2000-11-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: PRT ORGANISM: Streptococcus pneumoniae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Haselbeck, Robert
Ohlsen, Kari
Zyskind, Judith
Wall, Daniel
Trawick, John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: Patentin version 3.1
EQ ID NO 73670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Carr, Grant
Yamamoto, Robert
Forsyth, R.
Xu, H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Wang, Liangsu
APPLICANT: Zamudio, Carlos
APPLICANT: Malone, Cheryl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQ ID NOS: 78614
                                                  Conservative
                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-282-122A-73670
                                               60;
Query Match
Best Local S:
Matches 60
                                                                                                                                                                                                                                                                                                                                                      91
                                                                                                                                               셤
                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
```

```
APPLICANT: Law Thomas J
APPLICANT: Law Thomas J
APPLICANT: Zhou Yihua
APPLICANT: Zhou Yihua
APPLICANT: Cao Yongwai
TITLE OF INVENTION: Soy Nucleic Acid Molecules and Other Molecules Associated With
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
FILE REPRENCE: 38-21(53223)B
CURRENT APPLICATION NUMBER: US/10/424,599
CURRENT FILING DATE: 2003-04-28
SEQ ID NOS: 285684
                                                                                                                                                                                 61 SQDFKEKKTAVIKEKEVVSKNPVIDNNTSNEEAKIKEENSNKSQGDYTDSFVNKNTENPK 120
                                                                                                                                                                                                                                     97 YYDNSTYASHFYDPDTGTTYIPFAKHAKETGAKY----FNLAGQAYQ----NQD---- 142
                                                                                                                                                                                                                                                            121 KEDKVVYIAEFKDKESGEKAIKELSSLKNTKVLYTYDRIFN--GSAIETTPDNLDKIKQI 178
                                                                                                                                                                                                                                                                                                                143 ------TNLSYPMGF 178
                                                                                                                                                                                                                                                                                                                                           179 HSKYENFVDTIK-------NNYIVSD----SNGYWNWKGANPEDWIEGAAVAA 220
                                                                                                                                                                                                                                                                                                                                                                                                                     | | | | | | | : :| | | 238 RHKAMRIDDDAKASMRFKKEDLKGTDKNYWLSDKIPHAFNYNGGKITVEKYDDG---- 292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ENGIYSADYENPYYDNSTYASHF-----YDPDTGTTY-IPFAKHAKE----TGAKYF 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             101 ENS-----NNKYYNNDAYNTRFSETGYNNNKDSYEGNQYELSDTKYTEEEYNNNNNKYH 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     132 NLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFTNLSYPMGFHSKYENFVDTIKN 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          155 N----SYONNIOK-----YYNNDAANGIYSYNNINNY-----NANNRYNTYNN 195
                                                                                                                                                           53 -----WIVNRAIDIMSRNTTIVN--PNETALLNEWRADLENGIYSADY-----ENP- 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          84
                                                                                                     OTINISES PAPILRWS AED KHINEGINSHLWIVIRAID IMSRNTTIVIPINETALLINEWRADL
                                                                              1 MKKKV---LALAAMVALAAPVQSVVFAQTNNSESPAPI--LRWSAEDKH-NEGINSHL--
                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NYIVSDSNGYWNWKGANPEDWIEGAA----VAAKQDYPGVVNDT----TKDWF 236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61;
                                       66
  Length 2140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; Score 102.5; DB 12; Length 272;
; Pred. No. 0.19;
37; Mismatches 85; Indels 61;
                                     39; Mismatches 109; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; OTHER INFORMATION: Clone ID: PAT_MRT3847_58277C.1.pep
US-10-424-599-239481
  DB 12;
Score 108.5; Di
Pred. No. 0.88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-424-599-239481
; Sequence 239481,
Publication No. US20040031072A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    293 -RDYFDPHGMHIAGILAGNDTEQD 315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             221 KQDY------PGVV--NDTTKD 234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6.7%;
Query Match
7.1%;
Best Local Similarity 23.8%;
Matches 77; Conservative 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity 21.8*
Matches 51; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM: Glycine max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   192
                                     Matches
                                                                                                               g
                                                                                                                                                         ð
                                                                                                                                                                                        g
                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                 ద
                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
```

```
ð
                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      320 SPGVSVNYQHSETVANEMGSATNDGTHINGAESAYLNANVRYNNVGTGAIYETKPTTSPI 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              63 SRNTTIVNPNBTALLNEWRADLENGIYSADYENPY-----YDN-STYASHFYDPDT--- 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     113 --GTTYIPFAKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFT 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              380 LDGTT-IGTIK-AKENTTALTILPDQSYPEKGKN-----GIAINTMDDFNSRPIPLNKE 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         219 ----AAKQDYPGVVNDTTKDWFVKAAVSQEYADKWRAEVTPVTGKRLMEAQRVTAGYIHL 274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8 LAAMVALAAPVQSVVFAQT---NNSESPAPILRWSAEDKHNEGINSHLWIVNRAIDIM--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            53; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             171 NLSYPMGFHSKYENFVDTIKNNYIVSDSNG----YWNWKGANPEDWIEGAAV----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 6.3%; Score 96.5; DB 9; Length 836; Best Local Similarity 21.0%; Pred. No. 3.5; Matches 64; Conservative 48; Mismatches 140; Indels 5
                                                                                                                        APPLICANT: BOETS, Annemie
APPLICANT: BOETS, Annemie
APPLICANT: BOETS, Annemie
APPLICANT: ARNAUT, Greta
APPLICANT: ANN RIE, Jercen
APPLICANT: DAMME, Nicola
TITLE OF INVENTION: No. US20020199215A1e1 Toxins
FILE REFERENCE: 021565-07
CURRENT APPLICATION NUMBER: US/09/858,525A
CURRENT FILING DATE: 2001-05-17
PRIOR FILING DATE: 2000-05-18
NUMBER OF SEQ ID NOS: 10
SOFTWARE: PETCHIN VORSION 3.0
SOFTWARE: PRICE TYPE: PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 2, Application US/0985855A
Publication No. US20020199215A1
GENERAL INFORMATION:
APPLICANT: BOETS, Annemie
APPLICANT: VAN RIE, Jeroen
APPLICANT: VAN RIE, Jeroen
APPLICANT: DAWR, Nicole
ITILE OF INVENTION: NO. US20020199215A1e1 Toxins
FILE REFERENCE: 021565-077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION NUMBER: US/09/858,525A
CURRENT FILING DATE: 2001-05-17
PRIOR APPLICATION NUMBER: US 09/573,872
PRIOR FILING DATE: 2000-05-18
NUMBER OF SEQ ID NOS: 10
SOFTWARE: Patentin version 3.0
                                        Sequence 10, Application US/09858525A Publication No. US20020199215A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OTHER INFORMATION: ISPIA protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM: Artificial Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           275 WFDTY 279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               547 YVDEY 551
US-09-858-525A-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-858-525A-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-858-525A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ઠે
```

```
Sequence 219446, Application US/10424599
Publication No. US20040031072A1
GENERAL INFORMATION:
APPLICANT: La Rosa Thomas J
APPLICANT: La Rosa Thomas J
APPLICANT: La Rosa Thomas J
APPLICANT: Cao Yongwei
TITLE OF INVENTION: SOY Nucleic Acid Molecules and Other Molecules Associated With
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
TITLE OF INVENTION: Plants and Uses Thereof for Plant Improvement
CURRENT APPLICATION NUMBER: US/10/424,599
CURRENT FILING DATE: 2003-04-28
SEQ ID NO 219446
LENGTH: 293
                                                                                                                                                                                                                                                                                                       302 VAAFPSVNVSLEKVILSKNEDLSHSVESSOSTNMSY--TNTEGVN-----VNAGMSGLGP 354
                                                                                                                                                                                                                                                                                                                                                                                             113 --GITYIPFAKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFT 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  415 LDGTT-IGTIK-AKENTTALTILPDQSYPEKGKN-----GIAINTMDDFNSRPIPLNKE 466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               219 ----AAKQDYPGVVNDTTKDWFVKAAVSQEYADKWRAEVTPVTGKRLMEAQRVTAGYIHL 274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          144 QQAFFYLGLSLHYLGDVNQPMHAANFT--------NLSYPMG----- 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8 LAAMVALAAPVQSVVFAQT---NNSESPAPILRWSAEDKHNEGINSHLWIVNRAIDIM--
                                                                                                                                                                                                                                                                                                                                                          63 SRNTTIVNPNETALLNEWRADLENGIYSADYENPY-----YDN-STYASHFYDPDŢ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             171 NLSYPMGFHSKYENFVDTIKANYIVSDSNG----YWNWKGANPEDWIEGAAV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                               53;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       104 ASHFYD-PDTGTTYIPFAKHAKETGAKYFNLAGQA-----YQNQ-----
                                                                                                                                                               Length 871;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 6.3%; Score 96; DB 12; Length 293; Best Local Similarity 21.3%; Pred. No. 0.93; Matches 47; Conservative 31; Mismatches 85; Indels
                                                                                                                                                  Query Match
6.3%; Score 96.5; DB 9; Length 8
Best Local Similarity 21.0%; Pred. No. 3.7;
Matches 64; Conservative 48; Mismatches 140; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; OTHER INFORMATION: Clone ID: PAT_MRT3847_40186C.1.pep
US-10-424-599-219446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCATION: (1)..(293)
OTHER INFORMATION: unsure at all Xaa locations
; SEQ ID NO 2
; LENGTH: 871
; TYPE: PRT
; ORGANISM: Brevibacillus laterosporus
US-09-858-525A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM: Glycine max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     275 WPDTY 279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     : | |
582 YVDEY 586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURE:
NAME/KEY: unsure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-424-599-219446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
```

```
Sequence 17, Application US/09733524

Fatent No. US20020068347A1

GENERAL INFORMATION:

APPLICANT: The Governers of the University of Alberta, a Canada Corporation

APPLICANT: Taylor, Diane E.

APPLICANT: Taylor, Diane E.

APPLICANT: Taylor, Diane E.

APPLICANT: Taylor, Diane E.

APPLICANT: Taylor, Diane E.

APPLICANT: Taylor, Diane E.

APPLICANT: Taylor, Diane E.

APPLICANT: To C.

APPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ouery Match 6.1%; Score 93.5; DB 9; Length 479; Best Local Similarity 26.2%; Pred. No. 3.2; Matches 44; Conservative 29; Mismatches 64; Indels 31; Gaps 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     70 NPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYD-----PDTG----TTYIP 118
                                                             119 FAKHAKETGAKY-FNLA-----GQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFTNL 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               222 NVKNKNEFTSQYKFNLCFENTQGYGYVTEKIIDAYFSHTIPIYW----GSPSVAKDFNPK 277
178 FHSKYENFVDTIKNNYIVSDSNGYMNWKGANPEDWIEGAAVAAKODYPGVVNDTIKDWFV 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SYPMGFHSKYENF---VDTIKNNYIVSDSNGYWNWKGANPEDWIEGAA 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |::| ::| ::| | SF-WNVHD-FKNFDEAIDYIK--YLHTHKNAYLDMLYENPLNTLDGKA 321
                                                                                                                                                                                       238 KAAVSQEYADKWRAEVTPVTGKRLMEAQRVTAGYIHLWFDT 278
                                                                                                                                                                                                                                                                                        248 -ATEGSVLEDEYFLSRXPIVNLRLAQGGVRLAATLNRIFDT 287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: PRT .
ORGANISM: Helicobacter pylori fucosyltransferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; NAME/KEY: PEPTIDE
; LOCATION: (0)...(0)
; OTHER INFORMATION: Strain 763 from NCTC11639
US-09-733-524-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              173
                                                                                           셤
                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                              임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠે
     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠ
```

Search completed: July 27, 2004, 14:49:15 Job time : 48 secs

Colden) MIDIA OCO SILI

```
GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd.
```

OM protein - protein search, using sw model

Run on:

July 27, 2004, 14:38:52; Search time 17 Seconds (without alignments) 1595.648 Million cell updates/sec

PCT-US03-12556-2 1522 1 MKKKVLALAAAWVALAAPVQS..........EAQRVTAGYIHLWFDTYVNR 282

Perfect score: Sequence: BLOSUM62 Gapop 10.0 , Gapext 0.5 Scoring table:

283366 seqs, 96191526 residues Searched:

Total number of hits satisfying chosen parameters:

283366

seq length: 0 seq length: 200000000 Minimum DB E Maximum DB E Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

PIR 78:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:* Database :

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

	Description	Se C	lecithinase - List	phospholipase C [i	phospholipase C (E	probable phospholi	phospholipase C (E	phospholipase C (E	phospholipase C (E	phospholipase C, a	phospholipase C re	serine proteinase,	metalloproteinase	alkaline phosphata	hypothetical prote	glucan 1,3-beta-gl		conjugal transfer	hypothetical prote	outer membrane pro	ybfM protein - Esc	partial fimbrial u	partial fimbrial u	beta-mannanase Man	thermolabile hemol	F	hypothetical prote	hypothetical prote	glucosyltransferas	bifunctional nucle
SUMMARIES	ID	PS0197	C43868	AF1100	S20888	T43165	B30565	JQ0366	A30565	B49231	H97025	F95074	A97942	G97076	AF1972	855516	T39569	D82862	E98020	AE0616	H64802	F85620	H90756	D96966	A53888	S52500	E90051	E64483	S22737	H86245
	BB	7	~	7	7	~	~	7	N	~	N	N	~	~	7	~	~	N	~	N	~	~	~	0	-	~	7	~	~	0
	Query Match Length	592	289	289	289	178	398	398	398	398	245	2140	2144	625	470	295	2358	273	472	363	468	653	653	532	418	1283	441	624	1599	305
de	Query Match	82.3	33.6	33.6	33.4	20.7	16.7	15.2	15.0	14.9	7.2	7.1	7.0	6.8	6.7	6.7	•	6.5	6.4	6.4	6.4	6.4	6.4	6.3	•	6.3	•	•	6.2	6.2
	Score	1252.5	511.5	511	209	314.5	254	231	229	227	109.5	108.5	107	103	102.5	102	102	66	98	97.5	97	97	97	ŝ.	95.5	ů.	95	95	95	94.5
	Result No.	-	7	ო	4	S	9	7	80	6	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	56	27	28	29

quinoprotein alcoh	fimbrial adhesin F	methyl-accepting c	inner membrane pro	hypothetical prote	seed storage prote	hypothetical prote	dnaJ homolog prote	hypothetical prote	hypothetical prote	outer membrane por	hypothetical prote	cytosol nonspecifi	chitinase - Strept	hypothetical prote
B83399	S04072	F82383	G81692	S73853	\$24263	H87347	873361	A82940	AE2218	843159	G83212	JC6042	T35345	A87389
~ -	-	~	7	N	N	~	Н	~	~	~	~	Н	~	N,
623	277	770	787	405	304	538	910	782	358	363	441	474	296	342
6.2		6.1	6.1	6.1	6.1	6.1	6.1	6.0	6.0	0.9	6.0	6.0	6.0	0.9
94	93.5	93.5	93.5	93	92.5	92.5	92.5	92	91.5	91.5	91.5	91.5	91	91
30	32	33	34	35	36	37	38	39	40	41	42	43	44	45

ALIGNMENTS

FOLD
phospholipase C (EC 3.1.4.3) precursor - Bacillus cereus
N;Alternate names: cereolysin AB; phosphatidylcholine-hydrolyzing phospholipase C
C;Species: Bacillus cereus
C;Date: 30-Sep-1991 #sequence revision 26-Apr-1996 #text change 15-Oct-1999
C;Accession: S18978; PS0197; I40160; S01949; A32042; S03200; I40161
R; Kuzmin, N.P.; Gavrilenko, I.V.; Krukov, V.M.; Karpov, A.V.
submitted to the EMBL Data Library, January 1992
A; Description: Fused genes phospholipase C and sphingomyelinase Bacillus cereus ensuring
A;Reference number: S18978
A;Accession: S18978
A;Status: preliminary
A; Molecule type: DNA
A;Residues: 1-592 <kuz></kuz>
A;Cross-references: EMBL:X64140; NID:g39421; PIDN:CAA45501.1; PID:g39422
R;Ikeda, K.; Inoue, S.; Amasaki, C.; Teshima, K.; Ikezawa, H.
T Biochem 110 A8-95 1991

. Blochem. 110, 88-95, 1991 A;Title: Kinetics of the hydrolysis of monodispersed and micellar phosphatidylcholines c A;Reference number: PS0197; MUID:92041771; PMID:1939031 A;Accession: PS0197

A;Molecule type: protein
A;Residues: 39-49 < IKE>
R;Gavrilenko, I.V.; Baida, G.E.; Karpov, A.V.; Kuz'min, N.P.
Bioorg. Khim. 19, 133-138, 1993
A;Title: [Nucleotide sequence of phospholipase C and sphingomyelinase genes from Bacillu A;Reference number: I40160; MUID:93249510; PMID:8387306

A;Status: preliminary; translated from GB/EMBL/DDBJ

A,Molecule type: DNA A,Residues: 1-592 <RES. A,Cross-references: EMBL:X64140; NID:g39421; PIDN:CAA45501.1; PID:g39422; EMBL:X64141; N R,Johansen, T.; Haugli, F.B.; Ikezawa, H.; Little, C. Nucleic Acids Res. 16, 10370, 1988 A,Title: Bacillus cereus strain SE-1: nucleotide sequence of the sphingomyelinase C gene A,Reference number: S01949; MUID:89057484; PMID:2848222

A;Status: nucleic acid sequence not shown; translation not shown A;Molecule type: DNA

A; Residues: 1-283 <00H>
A; Residues: 1-283 <00H>
A; Cross-references: BMBL:X12854; NID:939444; PIDN:CAA31332.1; PID:9295765
A; Cross-references: BMBL:X12854; NID:939444; PIDN:CAA31332.1; PID:9295765
A; Note: the nucleotide sequence was submitted to the EMBL Data Library, September 1988
R; Gilmore, M.S.; Cruz-Rodz, A.L.; Leimeister-Waechter, M.; Kreft, J.; Goebel, W.
J. Bacteriol. 171, 744-753, 1989
A; Title: A Bacillus cereus cytolytic determinant, cereolysin AB, which comprises the pho A; Reference number: A32042; MUID:89123149; PMID:2536680

A;Status: preliminary A;Molecule type: DNA A;Residues: 1-8,'G',10-13,'L',15-30,'QRFGVIP',38-76,'L',78-119,'Y',121-211,'D',213-225,' A;Cross-references: GB:M24149; NID:g142672; PIDN:AAA91819.1; PID:g142673 R;Yamada, A.; Tsukagoshi, N.; Udaka, S.; Sasaki, T.; Makino, S.; Nakamura, S.; Little, C

```
C;Species Listeria monocytogenes (strain EGD-e)
C;Species Listeria monocytogenes
C;Accession: AF1100
R;Glaser, P: Frangeul, L.; Buchrieser, C.; Amend, A.; Baquero, F.; Berche, P.; Bloecker
C;Dominguez-Bernal, G.; Duchaud, B.; Durand, L.; Dussurget, O.; Entian, K.D.; Fsihi, H.
D;Jones, L.M.; Karst, U.
Science 294, 849-852, 2001
A;Authors: Kreft, J.; Kuhn, M.; Kunst, F.; Kurapkat, G.; Madueno, E.; Mattournam, A.; Maok, C.; Schlueter, T.; Sinces, N.; Tierrez, A.; Vazquez-Boland, J.A.; Voss, H.; Wehland, A;Title: Comparative genomics of Listeria species.
A;Reference number: AB1077; MUID:21537279; PMID:11679669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     phospholipase C (EC 3.1.4.3) precursor - Listeria monocytogenes (fragment)
C;Species: Listeria monocytogenes
C;Species: Listeria monocytogenes
C;Date: 16.58p-1992 #sequence_revision 16-Sep-1992 #text_change 24-Sep-1999
C;Accession: $20888
R;Domann, E.; Wehland, U.; Rohde, M.; Pistor, S.; Hartl, M.; Goebel, W.; Leimeister-Waec
R;Domann, E.; Wehland, U.; Rohde, M.; Pistor, S.; Hartl, M.; Goebel, W.; Leimeister-Waec
A;Title: A novel bacterial virulence gene in Listeria monocytogenes required for host ce
A;Reference number: $20887; MUID:92258410; PMID:1582425
A;Accession: $20888
A;Accession: $20888
A;Residues: 1-289 <a href="https://doi.org/10.1087/1.5982425">https://doi.org/10.1087/1.5982425</a>
A;Cross-references: EMBL:X59723; NID:g44091; PIDN:CAA42408.1; PID:g44093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Cross-references: GB:NC_003210; PIDN:CAD00732.1; PID:g16409570; GSPDB:GN00177
A;Experimental source: strain EGD-e
                                                          SHLWIVNRAIDIMSRNTTIVNPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYD 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               170 TNLSYPMGFHSKYENFVDTIKNNYIVSDSNGYWNWKGANPEDWIEGAAVAAKQDYPGVVN 229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        110 PDTGTTYIPFAKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 203 NWKGANPEDWIEGAAVAAKODYPGVVNDTTKDWFVKAAVSQEYADKWRAEVTPVTGKRLM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2 KKKVLALAAMVA-LAAPVQSVV-----FAQT----NNSESPAP-ILRWSAEDKHNEGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           230 DITKDWFVKAAVSQBYADKWRAEVTPVTGKRLMEAQRVTAGYIHLW 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
33.6%; Score 511; DB 2; Length 289;
Best Local Similarity 37.1%; Pred. No. 5e-33;
Matches 106; Conservative 55; Mismatches 107; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              244 AKTKKSYLVG-----NSEWKKDTVEPTGARLRDSQQTLAGFLEFW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Gene: plcB
C;Superfamily: Bacillus cereus phospholipase C
                                                                                                                                                                              271 DSQQTLAGFLEFW 283
                                                                                                                                              EAQRUTAGYIHLW 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-289 <GLA>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20
                                                                                                                                              263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C; Genetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a
                                                                           셤
                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                              ò
                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 2
(43866
Lecithinase - Listeria monocytogenes
C43866
Lecithinase - Listeria monocytogenes
C; Species: Listeria monocytogenes
C; Species: Listeria monocytogenes
C; Date: 10-Mar.1993 #sequence_revision 18-Nov-1994 #text_change 24-Sep-1998
C; Accession: C43868
R; Vazquez-Boland, J.A.; Kocks, C.; Dramsi, S.; Ohayon, H.; Geoffroy, C.; Mengaud, J.; CC
Infect. Immun. 60, 219-230, 1992
A; Title: Nucleotide sequence of the lecithinase operon of Listeria monocytogenes and pos A; Reference number: A43868 MulD:92104678; PMID:1309513
A; Accession: C43868
A; Residues: 1-289 < VAZ>
A; Molacule type: DNA
A; Residues: 1-289 < VAZ>
A; Note: sequence inconsistent with the nucleotide translation
A; Note: sequence extracted from NOBI backbone (NCBIN:74437, NCBIP:74462)
C; Superfamily: Bacillus cereus phospholipase C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ğ
Bur. J. Biochem. 175, 213-220, 1988

A;Title: Nucleotide sequence and expression in Escherichia coli of the gene coding for A;Title: Nucleotide sequence and expression in Escherichia coli of the gene coding for A;Reference number: $0130; MUID:86296483; PMID:2841128

A;Mclecule type: DNA
A;Mclecule type: DNA
A;Mclecule type: DNA
A;Residues: 166-211,'D',213-225,'A',227-238,'R',240-281,'N',283 <YAM>A;Residues: 166-211,'D',213-225,'A',227-238,'R',240-281,'N',283 <YAM>A;Genetics: Carab; plc
C;Genetics: EMBL:X12711; NID:939439; PIDN:CAA31213.1; PID:9757735
C;Genetics: Carab; plc
C;Keywords: phosphoric diester hydrolase C
C;Keywords: phosphoric diester hydrolase Estatus predicted <SIG>F;25-38/Domain: signal sequence #status predicted <PRO>F;25-38/Domain: propeptide #status predicted <PRO>F;39-283/Product: phospholipase C #status predicted <MAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             143 MQQAFFYLGLSLHYLGDVNQPMHAANFTNLSYPMGFHSKYENFVDTIKNNYIVSDSNGYW 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                157 FDTAFYKLGLAIHYYTDISQPMFANNFTAISYPPGYHCAYENYVDTIKHNYQATEDMVAK 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DIMSRNTTIVNPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYDPDTGTTYIPF 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SKYENFVDTIKNNYIVSDSNGYWNWKGANPEDWIEGAAVAAKQDYPGVVNDTIKDWFVKA 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               83 DLENGIYSADYENPYYDNSTYASHFYDPDTGTTYIPFAKHAKETGAKYFNLAGQAYQNQD 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |: :: :| | | | | | | |: | :| | | | |: 37 ARPHDIDSKLPHKLSWSADNPTHTWIPWLFKQAEKILAKDVNHMRANLAMBIKKFDK 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              24 AQTINISESPAP-ILRWSAEDKHINEGINSHLWIVNRAIDIMSRNTTIVNPNETALLINEWRA 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 MKKKVLALAAMVALAAPVQSVVFAQTNNSESPAPIL-RWSAEDKHNEGINSHLWIVNRAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 MKKKVLALAAAITVVAPLQSVAFAHENDGGSKIKIVHRWSAEDKHKEGVNSHLMIVNRAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYYLGDVNQPMHAANFTNLSYPMGFH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1;
                                                                                                                                                                                                                                                                                                                                                                                                                             Length 592;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 289;
                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
82.3%; Score 1252.5; DB 2; Length
Best Local Similarity 80.2%; Pred. No. 3.2e-91;
Matches 227; Conservative 23; Mismatches 32; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
33.6%; Score 511.5; DB 2;
Best Local Similarity 38.7%; Pred. No. 4.5e-33;
Matches 98; Conservative 52; Mismatches 96;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
```

4 63 243

Gaps

54;

```
gene from Clostridium perfringens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Comment: C. perfringens is a common pathogen of man and domestic animals and responsib Comment: This enzyme has both sphingomyelinase and lecithinase activities.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         phospholipase C (EC 3.1.4.3) precursor - Clostridium perfringens
N;Alternate names: Clostridium cedematiens beta- and gamma-toxins; Clostridium welchii
S;Species Clostridium perfringens
C;Species Clostridium perfringens
C;Date: 07-Sep-1990 #sequence_revision 07-Sep-1990 #text_change 15-Oct-1999
C;Accession: JQ0366
A;Raint-JOanis, B.; Garnier, T.; Cole, S.T.
Mol. Gen. Genet. 219, 453-460, 1989
A;Title: Gene cloning shows the alpha-toxin of Clostridium perfringens to contain both A;Reference number: JQ0366; MUID:90158507; PMID:2560137
A;Accession: JQ0366
A;Molecule type: DNA
A;Residues: 1-398 <SAI>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NGYWNWKGANP-----EDWIEGAAVAAKQDYPGVVNDTTKDWFVKAAVSQEYADKWRA 251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----KDLYYSHSTMSHSWDDW-- 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              113 GTTYIP----FAKHAKETG----AKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQP 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           YENPYYDNSTYASHPYDPDTGTTY-----IPFAKHAKETGAKYFNLAGQAYQNQDM
                                                                                                                                                                                                                                                                                                                                                                                                    26 AMDGKKDGTGTHSLIAEHGLSMLNND---LSGNESQQVKDNIKILNEYLGDLKLGSTYPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 MKRKICKALVCATLVTSLWAGVSTKVYA------W---DGKIDGTGTHAMIVT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             57 RAIDI----MSRNTTIVNPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYDPDT
                                                                                                                                                                                                                                                                                                                                                                      40 AEDKHNEGINSHLWIVNRAIDIMSRNTTIVNPNET-----ALLNEWRADLENGIYSAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 MKKKV---LALAAMV-ALAAPVQSVVFAQTNNSESPAPILRWSAEDKHNEGINSHLWIVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                144 QQAFFYLGLSLHYLGDVNQPMHAANFINLSYPMGFHSKYENFVDTIKNNYIVSDS---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A)Cross-references: GB:X17300; NID:g40619; PIDN:CAA35186.1; PID:g40620 A)Experimental source: strain 8-6 C; Comment: C. perfringens is a common pathogen of man and domestic anim C; Comment: This enzyme has both sphingomyelinase and lecithinase activities c; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 15.2%; Score 231; DB 2; Length 398; Best Local Similarity 28.4%; Pred. No. 1e-10; Matches 86; Conservative 44; Mismatches 105; Indels
                                                                                                                                                                                                                                                               Length 398;
                Infect. Immun. 57, 466-476, 1989
A;Title: Cloning and expression of the phospholipase C gene from A;Reference number: A30565; MUID:89108588; PMID:2536356
A;Accession: B30565; MUID:89108588; PMID:2536356
A;Status: preliminary; not compared with conceptual translation A;Mesidues: 1-398 4750>
C;Keywords: phosphoric diester hydrolase
                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A,Gene: plc
C,Keywords: phosphoric diester hydrolase
F,1-20/Domain: aignal sequence #status predicted <SIG>
F,29-398/Product: phospholipase C #status predicted <MAT>
                                                                                                                                                                                                                                                            Query Match
16.7%; Score 254; DB 2; L.
Best Local Similarity 26.9%; Pred. No. 1.5e-12;
Matches 73; Conservative 49; Mismatches 95;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SGVYKEAMENPSFNKWMTQNSIKYAKIA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           252 EVTPVTGKRLMEAQRV-TAGYIHLWFDTYVN 281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ---DYSGREAIKNSQVCTAGFLYRFMNEVSN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        199
                                                                                                                                                                                                                                                                                                                                                                      ଚ
                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8..8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 5
T43165
probable phospholipase C (EC 3.1.4.3) - Listeria ivanovii (fragment)
N;Alternate names: lecithinase
C;Species: Listeria ivanovii
C;Species: Listeria ivanovii
C;Species: Listeria ivanovii
C;Species: Listeria ivanovii
C;Date: 11.Jan.2000 #sequence_revision 11-Jan.2000 #text_change 02-Sep-2000
C;Accession: T43165
R;Gouin, E.; Dehoux, P.; Mengaud, J.; Kocks, C.; Cossart, P.
Infect. Immun. 63, 2729-2737, 1995
A;Title: lactA of Listeria ivanovii, although distantly related to Listeria monocytogene
A;Reference number: 222322; MUID:95310034; PMID:7790091
A;Reference number: 223322; MUID:95310034; PMID:7790091
A;Reference number: 223322; MUID:95310034; PMID:7790091
A;Residues: preliminary; translated from GB/EMBL/DDBJ
A;Residues: 1-178 cGOU>
A;Cross-references: EMBL:U19035; NID:9687659; PID:9687662; PIDN:AAA80585.1
A;Genetics:
A;Genetics:
A;Gene: plcB
C;Superfamily: Bacillus cereus phospholipase C
C;Keywords: phosphoric diester hydrolase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                   YLGDVNQPMHAANFTNLSYPMGFHSKYENFVDTIKNNYIVSDSNGYWNWKGANPEDWIEG 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MSRNTTIVNPNETALLNEWRADLENGIYSADYENPYYDNSTYASHFYDPDTGTTYIPFAK 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B30565
phospholipase C (BC 3.1.4.3) precursor - Clostridium bifermentans
C;Species: Clostridium bifermentans
C;Date: 23-Mar-1989 #sequence_revision 23-Mar-1989 #text_change 23-Jun-1993
C;Accession: B30565
                                                                                                                                                                                                                                                                                                                                                                                            PYYDNSTYASHFYDPDTGTTYIPFAKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        216 AAVAAKQDYPGVVNDTTKDWFVKAAVSQEYADKWRAEVTPVTGKRLMEAQRVTAGYIHLW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   36 LRWSAEDKHNEGINSHLWIVNRAIDIMSRNTTIVNPNETALLNEWRADLENGIYSADYEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5 VLALAA--MVALAAPVQSVVFAQTNNSESPAP-ILRWSAEDKHNEGINSHLWIVNRAIDI
                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 178;
                                                                                                                                                                                   Length 289;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHA 166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                       92; Indels
C;Genetics:
A;Gene: plcB
A;Gene: plcB
C;Superfamily: Bacillus cereus phospholipase C
C;Keywords: phosphoric diester hydrolase
F;1-25/Domain: signal sequence #status predicted <SIG>F;26-289/Product: phospholipase C #status predicted <MAT>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           67;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 2;
                                                                                                                                                                                   33.4%; Score 509; DB 2; 39.6%; Pred. No. 7.2e-33;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ch 20.7%; Score 314.5; DB Similarity 40.6%; Pred. No. 9e-18; 67; Conservative 28; Mismatches 6
                                                                                                                                                                                                                                       47; Mismatches
                                                                                                                                                                             Query Match
Best Local Similarity 39.61
Matches 95; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity
                                                                                                                                                                                                                                                                                                                                        20
                                                                                                                                                                                                                                                                                                                                                                                            96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
```

112

44

26

Gaps

68;

164 MRANATRALYSENSWIATSEDFORSORRESHINGARINGARINGARINGARINGARINGDED 162 OF 164 MRANATRALYSENGRINGARINGARINGARINGARINGARINGARING 212 OF 165 THENANT-ANDSAGNAVERTRAERSKERGYKINTVGCKTNEDFYDILKNUG 212 165 THENANTNOSAGNAVERTRAERSKERGYKINTVGCKTNEDRY	0.0 0.0
Query Match Best Local Similarity 25.8%; Pred. No. 1.5e-10; Matches 79; Conservative 44; Mismatches 109; Indels 74; Gaps 13;	Db 263 YIX 265 RESULT 10
KKVLALAAMVALAAPVQSVVFAQTNNSESPAPILRWSEDKHNE:	H97025 H977025 phospholipase C related protein [imported] - Clostridium acetobutylicum phospholipase C related protein [imported] - Clostridium acetobutylicum C;Species: Clostridium acetobutylicum C;Species: 14-Sep-2001 #sequence_revision 14-Sep-2001 #text_change 14-Sep-2001 C;Accession: H97025 R;Nolling, J; Breton, G; Omelchenko, M.V.; Markarova, K.S.; Zeng, Q.; Gibson, R.; Lee, J Daly, M.J.; Bennett, G.N.; Koonin, B.V.; Smith, D.R. J. Bacteriol: 183, 4823-4838, 2001 A;Title: Genome Sequence and Comparative Analysis of the Solvent-Producing Bacterium Clo

```
metalloproteinase (BC 3.4.21.-) A [imported] - Streptococcus pneumoniae (strain R6)
C;Species: Streptococcus pneumoniae
C;Species: Streptococcus pneumoniae
C;Species: Streptococcus pneumoniae
C;Species: Streptococcus pneumoniae
C;Species: Streptococcus pneumoniae
C;Species: Streptococcus pneumoniae
C;Species: Strain R6)
R;Hoskins, J.A.; Alborn Jr., W.; Arnold, J.; Blassczak, L.; Burgett, S.; DeHoff, B.S.; E
R;Hoskins, J.A.; Alborn Jr., W.; Arnold, J.; Blassczak, L.; Burgett, S.; DeHoff, B.S.; E
Y. P.; Sun, P.M.; Winkler, M.E.
J. Bacteriol. 183, 5709-5717, 2001
A;Authors: Yang, Y.; Young-Bellidd, M.; Zhao, G.; Zook, C.; Baltz, R.H.; Jaskunas, S.R.;
A;Title: Genome of the Bacterium Streptococcus pneumoniae Strain R6.
A;Reference number: A97872; MUID:21429245; PMID:11544234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    alkaline phosphatase superfamily protein [imported] - Clostridium acetobutylicum C;Species: Clostridium acetobutylicum C;Species: 14-Sep-2001 #sequence_revision 14-Sep-2001 #sequence_revision 14-Sep-2001 #sequence_revision 14-Sep-2001 #seton; G;? Omelchenko, M.V.; Markarova, K.S.; Zeng, Q.; Gibson, R.; Lee, J. Daly, M.J.; Berton, G.; Omelchenko, M.V.; Markarova, K.S.; Zeng, Q.; Gibson, R.; Lee, J. Daly, M.J.; Bennett, G.N.; Koonin, B.V.; Smith, D.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            142
           MOOAFFYLGL--SLHYLGDVNOPMHAANF-----TNLSYPMGF 178
                                                                                                                          A;Residues: 1-2144 <KUR>
A;Cross-references: GB:AE007317; PIDN:AAK99365.1; PID:g15458138; GSPDB:GN00174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61 NAIETSKÖTEEKKTTIIEEKEVVSKNPVIDTKTSNEEAKIKEENSNOSOGDHTDSFVNKN 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       121 TENPKKEDKVVYIAEFKOKESGEKAIKGLSNLKNTKVLYTYDRIFN--GSAIETTPDNLD 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----MQQAFFYLGL--SLHYLGDVNQPMHAANF-----TNLS 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           179 KIKQIEGISSIERAQKVQPMMHARKEIGVEEAIDYLKSINAPF-GKNFDGRGMVISNID 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      174 YPMGFHSKYENFVDTIK------NNYIVSD----SNGYWNWKGANPEDWIEG 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            : | | | | | | : :|
238 TGTDYRHKAMRIDDDAKASMRFKKEDLKGTDKNYWLSDKIPHAFNYYNGGKITVEKYDDG 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        93
                                                                                               179 HSKYENFVDTIK------NNYIVSD----SNGYWNWKGANPEDWIEGAAVAA
                                      EGISSVERAQKVQPMMNHARKEIGVEEAIDYLKSINAPF-GKNFDGRGMVISNIDTGTDY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MKKSTVLSLTTAAVILAAYAPNEVVLADTSSSEDALSISDKEKVVVDKETENKEKHKDIH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            94 -ENP-YYDNSTYASHFYDPDTGTTYIPFAKHAKETGAKY----FNLAGOAYO---NOD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 MKKKV---LALAAMVALAAPVQSVVFAQTNNSESPAPI--LRWSAEDKHNEGINSHLWI-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        --VNRAIDIMSRNTTIV-----NP-----NETALLNEWRADLENGIYSADY---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels 104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 2; Length 2144;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       113;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7.0%; Score 107; DB 23.1%; Pred. No. 5.7; ive 36; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----RDYFDPHGMHIAGILAGNDTEQD 320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAVAAKQDY - - - - - PGVV - - NDTTKD
                                                                                                                                                                                                                           293 -RDYFDPHGMHIAGILAGNDTEQD 315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C; Keywords: hydrolase; serine proteinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity 23.1 nes 76; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A,Accession: A97942
A,Status: preliminary
A,Molecule type: DNA
                                                                                                                                                                                     221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        22
                                                      179
             143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Loc
Matches
                                               셤
                                                                                               ઠે
                                                                                                                                셤
                                                                                                                                                                                δ
                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     serine proteinase, subtilase family [imported] - Streptococcus pneumoniae (strain TIGRA)
C;Species: Streptococcus pneumoniae
C;Date: 03-Aug-2001 #sequence_revision 03-Aug-2001 #text_change 03-Aug-2001
                                                                                                                                                                                                                                                                        9
A;Reference number: A96900; MUID:21359325; PMID:21359325
A;Accession: H97025
A;Accession: H97025
A;Molecule: preliminary
A;Molecule type: DNA
A;Residues: 1-245 «KUR»
A;Cross-references: GB:AE001437; PIDN:AAK78995.1; PID:g15023929; GSPDB:GN00168
A;Experimental source: Clostridium acetobutylicum ATCC824
C;Genetics:
A;Gene: CAC1019
                                                                                                                                                                                                                                                                                                                                                                                                                              SODFKEKKTAVIKEKEVVSKNPVIDNNTSNBEAKIKEENSNKSOGDYTDSFVNKNTENPK 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97 YYDNSTYA-----SHFYDPDTGTTYIPFAKHAKETGAKYFNLAGQAYQNQDMQQAFFY 149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LGLSLHYLGDVNOPMHAAN --- FTNLSYPMGFHSKYENFVDTIKNNYIVSDSNGYWNWKG 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ANPEDWIEGAAVAAKQDYPGVVNDTTKDWFVKAAVSQEYADKWRAEVTPVTGKRLMEAQR 266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YYDNSTYASHFYDPDTGTTYIPFAKHAKETGAKY----FNLAGQAYQ----NQD---- 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                96
                                                                                                                                                                                                                                                                                                                 EDKHNEGINSHLWIVNRAIDIMSRNTII----VNPNETALLNEWRADLENGIYSADYENP 96
                                                                                                                                                                                                                                                                                                                                                       ESTYGKTIRGIFFVINPVKKKVIKTTCIIHKYINSLAVBILKNKRKAKQYKFFSDNIE-A 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----WIVNRAIDIMSRNTTIVN--PNETALLNEWRADLENGIYSADY----ENP-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 MKKKV---LALAAMVALAAPVQSVVFAQTNNSESPAPI--LRWSAEDKH-NEGINSHL--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                        41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 2140;
                                                                                                                                                                                                                                Length 245;
                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                           7.2%; Score 109.5; DB 2; 20.2%; Pred. No. 0.22; ive 50; Mismatches 111;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 7.1%; Score 108.5; DB 2; Best Local Similarity 23.8%; Pred. No. 4.3; Matches 77; Conservative 39; Mismatches 109;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | |:| | :|
DNTRDYIRKNAKVANKIY-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    267 VTAGYIHLWFDTY 279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STAGLMMDYYEKY 231
                                                                                                                                                                                                                           Query Match
Best Local Similarity 20.2*
Matches 51, Conservative
                                                                                                                                                                                                                                                                                                                 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                       요
                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

```
261 LMEAQRVTAGYIH 273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       283 NVSA--VFAGHYH 293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A, Gene: SGD: EXG2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   314
                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Apported to a large of the protein alr1339 [imported] - Nostoc sp. (strain PCC 7120)

C) Specified to a protein alr1339 [imported] - Nostoc sp. (strain PCC 7120)

C) Specified Stoc sp. PCC 7120

A,Note: Nostoc sp. Strain PCC 7120

A,Note: National Strain PCC 7120 is a synonym of Anabaena sp. strain PCC 7120

C,Date: 14-Dec-2001 #sequence_revision 14-Dec-2001 #text_change 09-Dec-2002

C,Accasion: AF1372

R,Kanako, T.; Nakamura, Y.; Wolk, C.P.; Kuritz, T.; Sasamoto, S.; Watanabe, A.; Iriguchi Nakazaki, N.; Shimpo, S.; Sugimoto, M.; Takazawa, M.; Yamada, M.; Yasuda, M.; Tabata, S D,Tille: Complete Genomic Sequence of the Pilamentous Nitrogen-fixing Cyanobacterium Ana A; Reference number: AB1807; MulD:21595285; PMID:11759840

A,Status: preliminary

A,Molecule type: DNA

A,Residues: 1-470 <KCR>
A,Residues: 1-470 <KCR>
A,Residues: 1-470 <KCR>
A,Residues: 1-470 <KCR>
A,Residues: 1-470 <KCR>
A,Residues: 1-470 <KCR>
A,Residues: 1-470 <KCR>
A,Residues: 1-470 <KCR>
A,Residues: 1-470 <KCR>
A,Genetics:
A,Genetics:
A;Title: Genome Sequence and Comparative Analysis of the Solvent-Producing Bacterium Cld A;Reference number: A96900, MUID:21359325, PMID:21359325 A;Accession: G97076 A;Accession: G97076 A;Status: preliminary A;Molecule type: DNA A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625 < KUR> A;Residues: 1-625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       127 GAKYFNLAGQAYQNQDMQQAFFY-------LGLSLHYLGDVNQPMHAA 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           255 MIQVEALQOFVINSKVENQEITPNLNRW-----INKSLYFNNFFYQVSSGNT--- 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            71 PNETALLNEWRADLE----NGIYSADYENPYYDNSTYASHFYDPDTGTTYIPFAKHAKET 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      302 ------SDAEFLANNSFYPAASGAAYY---LYA------GNTYSSLAKEMNDN 339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            340 ---NYYTAVLHGYKEGFWNRNVMYKAEKPKDFFGEKSFNINENVGLGLSDKSFLNQ---- 392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              97 YY---DNSTYASHFYDPDTGTTYIPFAKHAKETGAKYFNLAGQAYQNQDMQQAFF---- 148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   126 VYPGLGNHDYANNVDDCYANNCAIGMVEYVRDAIKK---LNPRSFDYRESNSYKFPELRT 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11 MVALAAPVOSVVFAQTNNSESPAPILRWSAEDKHNEGINSHLWIVNRAIDIMSRNTTIVN 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 MKKKVLALAAMVALAAPVQSVV---FAQTNN-----SESPAPILRWSA-----E 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DKHNEGI----NSHLWIVNRAI-DIMSRNTTIVNPNETALLNEWRADLENGIYSADYENP 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          :| | ::::| | :::| | : | : | : | : | | : | | : | | : | | : | | : | | : : : | | : : : | | : : : : | | : : : : : | | : : : : : | | : | : : : : | | : : : : | | : : : : : | | : : : : : | | : : : : : | | : : : : : | | : : : : : | | : : : : : | | : : : : : : | | : : : : : | | : : : : : | | : : : : : | | : : : : : | | : : : : : | | : : : : : | | : : : : : | | : : : : : | | : : : : : | | : : : : : | | : : : : : | | : : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | | : : : : | : : : | : : : : | : : : | : : : | : : : | : : : | : : : | : : : | : : : | | : : : : | : : : | : : : | : : : | : : : | : : : | : : : | : : : | : : : | : : : | : : : | : : : | : : : | : : : | : : : | : : : | : : : | : : : | : : : | : : : | : : : | : : : | : : : | : : : : | : : : | : : : | : : : : | : : : : | : : : | : : : | : : : : | : : : : | : : : : | : : : | : : : : | : : : : | : : : : | : : : : | : : : : | : : : : | : : : | : : : : | : : : : | : : : : : | : : : : | : : : : | : : : : | : : : : | : : : : | : : : : | 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              168 NFTNLSYPMGFHSKYENFVDTIKNNYIVSDSNGY----WNWKGANPEDWIEGAAVAAKQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels 110; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             450 LGTFLDKLEKSGIMDNSVVILYGDHYAIPKDKINDLYDFENIKNPTDLDWY 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              223 -----DYPGVVNDTTKDWF 236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 470;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 625;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
6.7%; Score 102.5; DB 2; Length 4
Best Local Similarity 22.0%; Pred. No. 1.8;
Matches 69; Conservative 51; Mismatches 124; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 93;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
6.8%; Score 103; DB
Best Local Similarity 19.2%; Pred. No. 2.4;
Matches 56; Conservative 32; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
```

```
Glucan 1,3-beta-glucosidase (EC 3.2.1.58) - yeast (Saccharomyces cerevisiae)

N.Alternate names: exo-1,3-beta-glucosidase; protein YD9320A.12c; protein YDR261c
C;Species Saccharomyces cerevisiae
C;Species Saccharomyces cerevisiae
C;Date: 01-Aug-1995 #sequence revision 01-Sep-1995 #text_change 29-Oct-1999
C;Accession: 555516; 867319; 867464
R;Correa, J.; Varquez de Aldana, C.; San Segundo, P.; del Rey, F.
R;Correa, J.; Varquez de Aldana, C.; San Segundo, P.; del Rey, F.
A;Description: EXG2, a gene coding for a exo-1,3-B-glucanase with a GPI anchor attachmen A;Reference number: 855516
A;Molecule type: DNA
A;Reference number: 855516
A;Molecule type: DNA
A;Residues: 1-562 - CORA
A;Cross-references: EMBL:Z46870; NID:G861116; PIDN:CAA86950.1; PID:G861117
A;Experimental source: strain AB320
R;Murphy, L.; Harris, D.
R;Murphy, L.; Harris, D.
R;Murphy, L.; Harris, D.
R;Murphy, L.; Harris, D.
A;Reference number: 861117
A;Reference number: 861117
A;Reference number: 861117
A;Recensed to the EMBL Data Library, December 1995
A;Accession: 867319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Molecule type: DNA
A;Residues: 1-562 <MUR>
ACross=references: EMBL:Z68329; NID:gl136205; PIDN:CAA92719.1; PID:e215308; PID:gl13621
R;Murphy, L.; Harris, D.
Submitted to the EMBL Data Library, March 1996
A;Reference number: S67454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Molecule type: DNA
A;Residues: 1-562 <MUM>
A;Cross-references: EMBL:Z70202; NID:g1226026; PIDN:CAA94100.1; PID:e228630; PID:g122603
C;Genetics:
                                                                                                                                                                                                                 232 ---DWLEKDLTQARNEGKAIILNYHDSDNNW-----KNNYAPATYEQLKARRSDILKKY 282
-YLGLSLHYLGDVNQPMHAANFINLSYPMGFHSKYENFVDTIKNNYIVSDSNGYWNWKGA 207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----HYENLTGANYSSQDI------LVDHH------HYEVFTD 340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         58 AIDIM-----SRNTTIVNPNBTALLNEWRADLENGIYSADYENPYYDNSTYASHFYDPD 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       112 TGTTYIPFAKHAKETGAKYFNLAGQAYQNQDMQQAFFYLGLSLHYLGDVNQPMHAANFTN 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     172 LSYPMGFHSKYENFV---DIIKNNY----IVSDSNGYWNWKGANPE--DWIEGAAVAAK 221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  341 AQLAETQFARIENIINYGDSIHKELSFHPAVVGE-----WSGAITDCATWLNGVGVGAR 394
                                               NPEDWIEGAAVAAKQDYPGVV---NDTTKDWFVKAAVSQEYA----DKWRAEVTPVTGKR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QD--YPGVVNDTTKDWFVKAAVSQEYADKWRAEVTPVTGKRLMEAQRVT 268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           395 YDGSYYNTTLFTTNDKPVGTCISQNSLADWTQDYRDRV-RQFIEAQLAT 442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 2; Length 562;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            77; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ajcusis automota.
Ajcuses-references: SGD:S0002669; MIPS:YDR261c
A;Map position: 4R
A;Keywords: glycosidase; hydrolase; transmembrane protein
F;1-17/Domain: transmembrane #status predicted <fr/>F;546-562/Domain: transmembrane #status predicted <fr/>Afm2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 6.7%; Score 102; DB Best Local Similarity 23.1%; Pred. No. 2.5; Matches 53; Conservative 23; Mismatches
```

Search completed: July 27, 2004, 14:47:48 Job time : 18 secs

pct-us03-12556-2.rpr

(Olden) AMOIR BODG SIMI

August 1, 2004, 23:41:59; Search time 3697 Seconds (without alignments) 9953.540 Million cell updates/sec - nucleic search, using sw model OM nucleic Run on:

PCT-US03-12556-1 849 Title: Perfect score:

1 atgaaaaagaaagtattagc..........atacgtatgtaaatcgctaa 849 Sequence:

IDENTITY NUC Gapop 10.0 , Gapext 1.0 Scoring table:

6940544 Total number of hits satisfying chosen parameters:

3470272 segs, 21671516995 residues

Searched:

Minimum DB seq length: 0 Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries

Database

gb_ph:*
gb_pr:*
gb_pr:*
gb_pr:*
gb_sr:*
gb_sy:*
gb_vi:*
em_ba:*
em_fun:* em_mu:* em_om:* GenEmbl:*
1: gb_ba:*
2: gb_htg:*
3: gb_in:*
1: gb_om:*
5: gb_ov:*

`.

٠,

em_ro:* em_sts:* em_un:* em_ov:* em_pat:* em_ph:*

em_vi:*
em htg hum:*
em htg inv:*
em htg other:*
em htg mus:*
em htg pln:*
em htg mam:*
em_htgo_mus:* em_htgo_other:* htgo_hum:*

Pred. No. is the number of results predicted by chance to have a

score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

	Description	6268 Bacillus	24149 Bacillus	B.cereus	of b. Cereus	140 B.Cereus 17026 Bacillu	000	560	X12711 B. cereus g	B.cereus	0839	3749	AX415655 Sequence	1 Discella 974 Listeri	811	23 L. monocyt	50836 Listeri	50830 Listeri	Listeri		Listeri	Listeri		Listeri	AIISU838 LISCELIA AIISARPIA	isteria	Listeri		AX416781 Sequence	Plasmodi	_	Ξ		_	BX296532 Danio rer	DICTYOR	inuation (4	1365 Seprais	Continuation (25 o	sass debiati	31380 Strongyl		
ļ.	חד	BTY16268	BACCERAB	BCGENE	BCFLCSMC	AE017026	AE017000	AY195600	BCPLC	BACHEMOL	AY150839	AX413749	AX415655	AI.591974	AX638811	LMACTPLC	AY150836	AY150830	AY150840	AY150841	AY150837	AY150835	AY150833	AII50834	1.TV249805		AY150832	AY150831	AX416781	AE014820	AC115599	BX569779	PFA929354	186	553	98697	8	ຸດ	17	047	- س		ALIGNMENTS
1	n rengru na	167	ъ.	234	200	29021	301289	2130	1 1622	3 280	8 825	870	0.830	160050	349	3031	5 758	5 758	ы	D.			758	7,00	7176	. 60	8 740	6 701	4562	7 250029	5 125623	5 183357	4 340552	1234	3 156323	2 333321	0 110000	0 84618	0 110000	010751 6	8 49144 2		
Query	score marc	59.2 65	556 65.	56 65	00	24 00 00	8 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	4 64	.6 30	.4 22	.8 20.	.4 18.	18.	. 4 . 4	18.	.8 18.	.8 17.	48.2 17.	48.2 17.	48.2 17.	5.6 17.	44.6 17.	17.	144 17.	2 5	13.	2 13.	2 7.	7.4	• •	55 6.	5	7	54	4.		. 21	8.0	۰۰	7.0	40.04	,	
Result	.ON	-	h.	m •	d* L	n u	-	- σο	ō	10	11	12	E .	* L		17	18	19	20	21	22	23	4 C	2,0	27	28	29	М	0 31	9 6	0 3.4	m	c 36	37	38	η.	C 40	4,	24.	£ 4	4 4 4 5		

RESULT 1
BITL 6268
LOCUS
DEFINITION
ACCESTION
VERSION
KEYWORDS
SOURCE
ORGANISM

BCT 02-0CT-1998 bTY16268 1675 bp DNA linear BCT Bacillus thuringiensis plcA gene and partial plcB gene ~~ Y16268

716268.1 GI:2815226 phospholipase C; plcA gene; plcB gene; sphingomyelinase. Facilius thuringiansis Bacilius thuringiansis Bacillacese; Bacillus; Bacillus cereus group. Lovgren, A., Carlson, C.R., Eskils, K. and Kolsto, A.B. Localization of putative virulence genes on a physical map of the bacillus thuringiensis subsp. gelechiae chromosome

AUTHORS TITLE REFERENCE

```
/codon start=1
/transl_table=11
/protein_id="AaA91819.1"
/db_xref="GI:142673"
/translation="MKKKVLALGAAITLVAPLQSVAFAHENDGGQRFGVIPRWSAEDK
                                                                                                                                                                                                                                                                                                                                                1083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1263
                                                                                                                                                                                                                                                                                                                                                                                                                         597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BCT 11-MAR-1996
                                                                                                                                                                                                                                                                                                                                                                                                 657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     777
                     417
                                                                                                             477
                                                                                                                                                            963
                                                                                                                                                                                                            537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  778 CGTTTAATGGAAGCGCAGCGCGTTACAGCTGGTTATATTCATTTGTGGTTTGATACGTAT 837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cereus group.
1 (bases 1 to 2245)
Gilmore, M.S., Cruz-Rodz, A.L., Leimeister-Wachter, M., Kreft, J. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bacteria, Firmicutes, Bacillales, Bacillaceae, Bacillus, Bacillus
                                                                                                                                           1144 GCGAAACAAGATTACGCTGGCATTGTAAATGATAATACGAAAGATTGGTTCGTAAGAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1204 GCTGTATCACAAGAATATGCAGATAAATGGCGCGCTGAAGGTTACACCAATGACAGGTAAG
                                                964 GTAAACCAACCGATGCATGCGGCAAACTTTACGAACCTTTCGTATCCACAAGGATTCCAT
                                                                                                                                                                                                                                                                                                                                                1024 TCTAAATATGAAACTTTGTAGATACGATAAAGATAATTATAAAGTAACGGATGGAAAT
                                                                                                                                                                                                                                                                                                                                                                                                 598 GGATATTGGAATTGGAAAGGAGCAAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        718 GCCGTATCTCAAGAATATGCAGATAAATGGCGTGCGGAAGTAACACCGGTGACAGGAAAG
                     GCGAAACATGCAAAAGAAACAGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAA
                                                                                                                418 AATCAAGATATGCAGCAAGCATTCTTCTACTTAGGATTATCGCTTCATTATTTAGGAGAT
                                                                                                                                                                                                                                                                                                       538 TCTAAATACGAAAATTTTGTTGATACAATAAAAAATAACTATATTGTTTCAGATAGCAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              658 GCTAAACAAGATTATCCTGGCGTTGTGAACGATACGACAAAAGATTGGTTTGTAAAAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Goebel, W.
A Bacillus cereus cytolytic determinant, cereolysin AB, which comprises the phospholipase C and sphingomyelinase genes: nucleotide sequence and genetic linkage
J. Bacteriol. 171 (2), 744-753 (1989)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bacillus cereus cerA and cerB genes, complete cds. M24149.1 GI:142672 cerA gene. Bacillus cereus Bacillus cereus Bacillus cereus Bacillus cereus Bacillus cereus Bacillus cereus Bacillus cereus Bacillus cereus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source text: Bacillus cereus DNA.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /organism="Bacillus cereus"
/mol_type="genomic DNA"
/db_xref="taxon:1396"
2017.,1052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             201. .1052
/gene="cerA"
201. .1052
/gene="cerA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               838 GTAAATCGCTAA 849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Original
                     358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITATION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 2
BACCERAB
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                     g
                                                                                                             ઠે
                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                       Š
                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                         /transI_table=11
/product="phosphatidyl-degrading phospholipase C"
/product="phosphatidyl-degrading phospholipase C"
/product="CAA76148.1"
/db_xref="GI:281527"
/db_xref="GO:2864"
/db_xref="GO:2864"
/db_xref="GO:2864"
/translation="MKKVJAIAAAITLVAPLQSVAFAHENDGGQRFGVIPRWSAEDK
/translation="MKKVJAIAAAITLVAPLQSVAFAHENDGGQRFGVIPRWSAEDK
/translation="MKKVJAIAAAITLVAPLQSVAFAHENDGGQRFGVIPRWSAEDK
/translation="MKKVJAIAAAITLVAPLQSVAFAHENDGGQRFGVIPRWSAEDK
/translation="MKKVJAIAAAITLVAPLQSVAFAHENDGGQRFGVIPRYDGS
/translation="MKKVJAIAAAITLVAPLQSVAFAHENDGGQRFGVIPRYDGSVADNSAEDVIPWTGAA
/translation="MKKVJAIAAAITLVAPLQSVADKWRAEVTPWTGKRLWDAGRVTAGTIQLW
/translation="MKKCDVAPLATIQ"
/translation="MKKCDVAPLATIC"
/db_xref="GI:2815286"
/translation="MKKVJAIAAITLVAPLQSVADKWRAEVTPWTGKRLWDAGRTIQLW
/translation="MKKCDVAPLATIC"
/translation="MKKCDVAPLATIC"
/db_xref="GI:2815286"
/translation="MKKVJAIAAITLVAPLATIC"
/translation="MKKCDVAPLATIC"
/translation="MKKCDVAPLATIC"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIATLT"
/translation="MKKVJAIAAITLT"
/translation="MKKVJAIATLT"
/translati
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
Submitted (21-JAN-1998) A. Lovgren, Dept of Microbiology, Stockholm
University, S-106 91 Stockholm 106 91, SWEDEN
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCTGAGGATAAGCATAATGAGGGGATTAACTCTCATTTGTGGGATTGTAAATCGTGCAATH 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTAGTATTTGCACAAACAATAATAGTG---AAAGTCCTGCACCGATTTTAAGATGGTCA 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GACATCATGTCTCGTAATACAACGATTGTGAATCCGAATGAACTGCATTATTAATGAG 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCTGAAGATAAAACATAAAGAAGGCGTGAATTCTCATTTATGGATTGTAAACGTGCAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AATAGTACATATGCTTCTCACTTTTATGATCCGGATACTGGAACAACATATATTCCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u> aatagcacatritectritecatritetateacecreaceareegaaaecriatatriteegaa</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 ATGAAAAAGAAAGTATTAGCACTAGCAGTATGGTTGCTTTAGCTGCGCCAGTTCAAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               484 ATGAAAAGAAAGTACTTGCTTTAGCGGCAGCTATTACATTAGTTGCTCCATTACAAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         544 GTTGCATTTGCTCATGAAAATGATGGGGGACAGAGATTTGGAGTTATTCCGCGCTCGTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGGCGTGCTGATTTAGAAAATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 1675;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 559.2; DB 1; Length Fred. No. 2.5e-105; Mismatches 173; Indels
                                                                                                                                                                          1. .1675
/organism="Bacillus thuringiensis"
/mol_type="genomic DNA"
/strain="Bt13"
Microbiol. 37 (4), 245-250 (1998)
                                                                                                                                                                                                                                                                            /sub_species="gelechiae"
/db_xref="taxon:1428"
/clone="PLC9:51"
                                                                                                                                                                                                                                                                                                                                                                                                                                                  codon start=1
transl_table=
                                                                                                                                                                                                                                                                                                                                                   484. .1335
/gene="plcA"
484. .1335
/gene="plcA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (65.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1529. .1675
/gene="plcB"
                                  2 (bases 1 to 1675)
Lovgren, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches 676, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       784
                     PUBMED
REFERENCE
AUTHORS
                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sas
                                                                                                                                                                FATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ×. ×
```

g

ઠે

유 δ 셤 ઠે g

გ ò 윰

26-JUN-1997

BCT

```
HKEGVNSHLMI VNRAIDIMSRNTTLVKQDRVAĞLAFWRTELENGI YAADYENPYYDNS
TRESHRYDDDNGKTY I PEAKQAKETGAK FKALAGESYKNKANDKQAF FYLGLSLAHYLGD
VNOPMHAANETINLS Y POÇFHSKY ENLYDTI KONYKYTDGNGYNNWGTNPEBRIHGAA
VVAKQDYSGI VNDNTKDMFVKAAVSQEYADKWRAEVTPWTGKRLMDAQRVTAGYIQLM
                                                        /translation="MKKKVLALAAAITVVAPLQSVAFAHENDGGSKIKIVHRWSAEDK
                                                                                                                                                                                                                                                                                                                               Bacteria; Firmicutes; Bacillales; Bacillaceae; Bacillus; Bacillus cereus group.

1 (bases 1 to 2349)

Gavrilenko I.V. Baida, G.E., Karpov, A.V. and Kuz'min, N.P.

Nucleotide sequence of phospholipase C and sphingomyelinase genes Erom Bacillus cereus BKM-BL64

Bioorg. Khim. 19 (1), 133-138 (1993)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Kuzmin,N.P.
Direct Submission
Submitted (14-JAN-1992) N.P. Kuzmin, Inst. of Biochemistry &
Physiology of Microorganisms AS USSR, Pustchino, MOSCOW Region,
142292, USSR
                GCCGTATCTCAAGAATATGCAGATAAATGGCGTGCGGAAGTAACACCGGTGACAGGAAAG
                                                                                                                                                                                                                                                                          X64141.1 GI:312905
phospholipase C; PLC gene; sph gene; sphingomyelinase
Bacillus cereus
Bacillus cereus
                                                                                                                                                                                                                              DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         db_xref="SWISS-PROT:P09598"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ັບ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="phospholipase of
/protein_id="CAA45502.1"
/db_xref="G1:312906"
/db_xref="GOA:P09598"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="plc"
53. .904
/gene="plc"
/EC number="3.1.4.3"
/codon start=1
/evidence=experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1. .2349
/organism="Bacillus cen/mol_type="genomic DNA'
/strain="VKM 164"
                                                                                                                                                                                                                              ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="sph"
978. .1979
/gene="sph"
/EC_number="3.1.4.12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    165. .968
evidence=experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /db_xref="taxon:1396"
/clone="phR3"
41. .45
                                                                                                                                                                                                                             BCGENE 2349
B.cereus genes plc and sph.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             See also x64140.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               transl table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (bases 1 to 2349)
                                                                                                                                       | |||||| |||
1041 GGAAATCGTTAA 1052
                                                                                                                     849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FDTYGDR
                                                                                                                       GTAAATCGCTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8387306
718
                                                                                                                    838
                           921
                                                                                                                                                                                                                                           DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                     AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RBS
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                              RESULT 3
BCGENE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                      g
                                                                                g
                                                                                                                                               g
                                                          ઠે
                                                                                                                  Š
                                                                                                                                                                                           / translation="MKGKLLKGVLSLCVGLGALYSGTSAQAEASTNQNDTLKVWTHNV
YMLSTNLYPWGQTERADLFGAADYIKNQDVVILNEVFDNSASDRLLGNLKKEYPNQT
YMLSRNGSEWBUTLGNYSSSTPEDGCANIVSKNPTARKIQYPTAKGGOEDDNLSNKGF
VYTKIKKNDRFVHVIGTHLQAEDSMGGKTSPASVRTNQLKEIQDFIGNKNIPNEYVL
IGGDMNVNKINAENNNDSEYASMFKTLANASVPSYTGHTATWDATTNSIAKYNPPDSLA
EYLDYIIASKDHANESYIENKVLQPKSPQWTVTSWFKNILIQVEATISMK"
           TFASHFYDPDNGKTYIPYAKQAKETGAKYFKLAGESYKNKDNKQAFFYLGLSLHYLGD
VOPCHAAANFTNLSYPQGFHSKXENFVDTIKDNYKVTDGNGYNNWKGTNPEDWTHGAA
VVAKQDYAGIVNDNTKDWFVRAAVSQEYADKWRAEVTPMTGKRLMDAQRVTAGYIQLW
FDTYGNR"
KEGVNSHLWIVNRAIDIMSRNTTLVKQDRVALLNEWRTELENGIYAADYENPYYDNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                  117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              920
                                                                                                                                                                                                                                                                                                                                                                                                                   260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGATATTGGAATTGGAAAGGAGCAAACCCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCA 657
                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GTTGCATTTGCTCATGAAAATGATGGGGACAGAGATTTGGAGTTATTCCGCGCTGGTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGCGTACTGAGTTAGAGAACGGTATTTATGCTGCTGCTGACTATGAAAATCCTTATTATGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCAAAGCAGGCAAAAGGAAACTGGAGCTAAATATTTTAAATTAGCTGGTGAGTCTTACAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGAAAAAGAAAGTATTAGCACTAGCAGCTATGGTTGCTTTAGCTGCGCCAGTTCAAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                  Arganandandricrrecrringececeaecrarracarracrrecrecarrachangr
                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTAGTATTTGCACAAACAAATAATAGTG---AAAGTCCTGCACCGATTTTAAGATGGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCTGAGGATAAGCATAATGAGGGGATTAACTCTCATTTGTGGATTGTAAATCGTGCAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCTGAAGATAAACATAAAGAAGGCGTGAATTCTCATTTATGGATTGTAAACCGTGCAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GACATCATGTCTCGTAATACAACGATTGTGAATCCGAATGAAACTGCATTATTAAATGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GATATTATGTCTCCTAATACAACACTTGTAAAACAAGATCGAGTTGCACTATTAAATGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGCGTGCTGATTTAGAAAATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AATAGTACATATGCTTCTCACTTTTATGATCCGGATACTGGAACAACATATATTCCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGAAACATGCAAAAGAAACAGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AATCAAGATATGCAGCAAGCATTCTTCTACTTAGGATTATCGCTTCATTATTAGGAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AATAAAGATATGAAACAAGCATTCTTCTATTTAGGATTATCTCTTCATTATTTAGGGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCTAAATACGAAAATTTTGTTGATACAATAAAAATAACTATATTGTTTCAGATAGCAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCTAAACAAGATTATCCTGGCGTTGTGAACGATACGACAAAAGATTGGTTTGTAAAAGCA
                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                        3,
                                                                                                                                                                                                                                                                                                                         Length 2245;
                                                                                                                                                                                                                                                                                                                       65.5%; Score 556; DB 1; Length 22
.larity 79.1%; Pred. No. 1.1e-104;
Conservative 0; Mismatches 175; Indels
                                                                                                                                                 /transT_table=11
/protein_id="AAA91820.1"
/db_xref="GI:142674"
                                                                                                                                  /codon start=1
/transl_table=
                                                                       1129. .2130
/gene="cerB"
                                                                                                     129. .2130
gene="cerB"
                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                    674;
                                                                                                                                                                                                                                                                                                                                                                                      Н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              861
                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                   201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          681
                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  261
                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                         Best Loc
Matches
                                                                          gene
                                                                                                    CDS
                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ብ ራ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        음 &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ે
```

pct-us03-12556-1.rge

```
/protein_id="CAA31332.1"

/db_xref="G1:295765"

/db_xref="G1:295765"

/db_xref="G0A:P09598"

/db_xref="G0A:P09598"

/db_xref="GNISS-PROT:P09598"

/db_xref="GNISS-PROT:P09598"

/db_xref="GNISS-PROTINGAA1TVVAPIQSVAFAHENDGGSKIKIVHRWGAEDK

/translation="WKKKVLALAAA1TVVADIANGWFRELENGIYAADYENPYYDNS

/translation="MKKKVLALAAA1TVVADIANGWFRELENGIYAADYENPYYDNS

/translation="MKKKVLALAAA1TVACDIANGWFRELENGIYAADYENPYYDNS

/translation="MKKGNYSTERAANGAEYANGAEYATVAGNIAMAANFYNDGINGYNNWKGNNPEWHIGAA

VVAXQDYSGGIVNDNIKDWFVKAAVSQEYADKWRAEVTPWIGKRLMDAQRVTAGYIQLM

PDTYGDR"
                                                                                                                                                                                                             B. cereus genes for phospholipase C and sphingomyelinase C. X12854 M20194 X12854.1 GT:39444
833 CGAITAATGGATGCACAACGTGTTACTGCTGGATACATTCAGCTTTGGTTTGATACGTAC 892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cloning and sequencing of the gene encoding the phosphatidylcholine-preferring phospholipase C of Bacillus cereus 88313678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Biology,
                                                                                                                                                                                                                                                                                                                                                                                                        Bacillales; Bacillaceae; Bacillus; Bacillus
                                                                                                                                                                                                                                                                                                                                                                                                                                Cereus group.
1 (bases 1 to 2050)
Johansen, T., Holm, T., Guddal, P.H., Sletten, K., Haugli, P.B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (12-5RE-1988) Johansen T., Institute of Medical Isubmitted (12-5RE-1988) Johansen T., Institute of Medical Ical Biology, University of Tromso, 9001 Tromso, Norway on Jul 24, 2002 this sequence version replaced gi:143336. Data kindly reviewed (11-JNM-1989) by Johansen T. Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (bases 1441 to 2700)
Johansen, T., Haugli, F.B., Ikezawa, H. and Little, C.
Bacillus cereus strain SE-1: nucleotide sequence of the
                                                                                                                                                                                                                                                                                                                         phospholipase C; PLC gene; smc gene; sphingomyelinase. Bacillus cereus
Bacillus cereus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       291. .340 /note="put. rho-independent terminator"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            368. .445
/note="intergenic palindromic sequence"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 562. .633
/note="put. signal peptide (PLC)
676. .1410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sphingomyelinase C gene
Nucleic Acids Res. 16 (21), 10370 (1988)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bite"

    .2700
    /organism="Bacillus cereus"
/mol_type="genomic DNA"
    /strain="SE-1"

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             545..554
/note="pot.rRNA binding si
562..141
/codon statt=1
/tranal_table=11
/product="PLC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="taxon:1396"
1. .305
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  note="ORF1"
                                                                                                                                                                                                                                                                                                                                                                                                                Bacteria, Firmicutes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (bases 1 to 2700)
                                                         849
                                                                                                         904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Direct Submission
                                                                                                 GGAGATCGTTAA
                                                         838 GTAAATCGCTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Johansen, T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3137122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -35_signal
-10_signal
RBS_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               terminator
                                                                                                            893
                                                                                                                                                                                                                                                          DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REPERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ses
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                     RESULT 4
BCPLCSMC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                 셤
             용
                                                  ò
                                       /transl_table=11
/product="sphingomyelin_phosphodiesterase"
/protein_id="CAA5503.1"
/brotein_id="CAA5503.1"
/db_xref="GA1580755"
/db_xref="GA1580755"
/db_xref="GA1580755"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xref="SQA:P9599"
/db_xr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGATATTGGAACTGGAAAGGTACAAATCCAGAAGAGTGGATTCATGGAGCGGCAGTAGTA 712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTAAACAAGATTATCCTGGCGTTGTGAACGATACGACAAAAGATTGGTTTGTAAAAGCA 717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COTITAATGGAAGGCGCGCGTTACACTGCTGTATATTCATTGTGGGTTTGATACGTAT 837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCGTATCTCAAGAATATGCAGATAAATGGCGTGCGGAAGTAACACCGGTGACAGGAAAG 777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTAGTATTTGCACAAACAAATAATAGTGAAAGTCCTGCACCGATTTTAA---GATGGTCA 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      233 GAIATTAIGTCTCGCAAIACAACACTTGIAAAACAAGAICGAGTIGCACAATTAAATGAA 292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         argananaganagracingciningcagcanthacagracincularachangc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         478 GIGAAICAGCCAAIGCAIGCAGCAAACITIACGAAICTIICTIAICCAAIGGGIIICCAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCTABATACGABARTTTTGTTGATACAATAABAATAACTATATTGTTTCACATAGCAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  193 TGGCGTACGGAGTTAGAGAACGGTATTTATGCTGCTGACGAATATCTTATTATGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGAAAAAGAAAGTATTAGCACTAAGCAGCTATGGTTGCTTTAGCTGCGCCAGTTCAAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GACATCATGTCTCGTAATACAACGATTGTGAATCCGAATGAAACTGCATTATTAAATGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TGGCGTGCTGATTTAGAAAATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AATAGTACATATGCTTCTCACTTTTATGATCCGGATACTGGAACAACATATATTCCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>Aatagcacatttgcrtcacattrcratgarccagacaarggaaaacatatatrccattr</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGAAACATGCAAAAGAAAAAGAGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AATCAAGATATGCAGCAAGCATTCTTCTACTTAGGATTATCGCTTCATTATTTAGGAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTTGCATTTGCTCATGAAAATGATGGGGGAAGTAAAAATAAAAATAGTTCACCGCTGGTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTGAGGATAAGCATAATGAGGGGATTAACTCTCATTTGTGGATTGTAAATCGTGCAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                3;
                                                                                                                                                                                                                                                                                                                                                                                           Length 2349;
                                                                                                                                                                                                                                                                                                                                                                                        Query Match 65.5%; Score 556; DB 1; Length 23 Best Local Similarity 79.1%; Pred. No. 1.1e-104; Matches 674; Conservative 0; Mismatches 175; Indels
                     evidence-experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      è
```

셤

ፅ ጅ

ò

셤 ઠે 셤 ઠે g 8 &

ઠ

a

ઠ

요 È

ò

Š

```
/db_xref="COA:P09598"
/db_xref="COA:P09599"
/db_xref="SWISS-PROT:P09599"
/db_xref="SWISS-PROT:P09599"
/translation="MKKKVLALAAAITVVAPLQSVAPAHENDGGSKIKIVHRWSAEDK
HKEGVNSHLMIVNRAIDIMSRNTTLVKQDRVAQLNEWRTELENGIYAADYENPYYDNS
                                                                            1222 GCGAAACAAGATTACTCTGGAATTGTAAATGATAATACGAAAGATTGGTTCGTAAAAGCA 1281
                                                                                                                                                                                                                                                                          1342 CGATTAATGGATGCACAACGTGTTACTGCTGGATACATTCAGCTTTGGTTTGATACGTAC 1401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BCT 17-JUN-1993
1102 TCTAAATATGAAAACTTTGTAGATACGATAAAAGATAATTATAAAGTAACGGATGGAAAT 1161
                                                                                                                                                                                                                                            GCCGTATCTCAAGAATATGCAGATAAATGGCGTGCGGAAGTAACACCGGTGACAGGAAAG 777
                                                                                                                                                                                                                                                                                                                                             CGTTTAATGGAAGCGCAGCGCGTTACAGCTGGTTATATTCATTTGTGGTTTGATACGTAT 837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gavrilenko,I.V., Baida,G.E., Karpov,A.V. and Kuz'min,N.P.
Nucleotide sequence of phospholipase C and sphingomyelinase genes
from Bacillus cereus BKM-B164
aloorg. Khim. 19 (1), 133-138 (1993)
93249510
8387306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bacteria; Firmicutes; Bacillales; Bacillaceae; Bacillus; Bacillus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 (bases 1 to 2201)
Kuzmin,N.P.
Direct Submission
Submitted (14-JAN-1992) N.P. Kuzmin, Inst. of Biochemistry & Physiology of Microorganisms AS USSR, Pustchino, MOSCOW Region, 142292, USSR
                                                                                                                                              GCTAAACAAGATTATCCTGGCGTTGTGAACGATACGACAAAAGATTGGTTTGTAAAAGCA
                                                GGATATTGGAATTGGAAAGCAGCAAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BCFUSE 2201 bp DNA 1
B.cereus fuse genes plc and sph (=h-cerAB).
X64140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cereus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1. .2201
/organism="Bacillus cere
/mol_type="genomic DNA"
/strain="VKM 164"
/db_xref="taxon:1396"
/clone="pF27F"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11. .45
'note="SD h-cerAB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cereolysin AB; fuse genes.
Bacillus cereus
Bacillus cereus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene="h-cerAB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           53. .1831
/gene="h-cerAB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | | |||| |||
1402 GGAGATCGTTAA 1413
                                                                                                                                                                                                                                                                                                                                                                                                                                           GTAAATCGCTAA 849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .1831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       X64140.1 GI:39421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              See also x64141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cereus group.
                                                                                                                                           658
                                                                                                                                                                                                                                            718
                                                                                                                                                                                                                                                                                                                                             778
                                                                                                                                                                                                                                                                                                                                                                                                                                           838
                                                598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BCFUSE
                                                                                   셤
                                                                                                                               ò
                                                                                                                                                                                    g
                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                             ઠે
                                                                                                                                                                                                                                                                                                                                  /db_xref="COA:P09599"
/db_xref="COA:P09599"
/db_xref="SWISS-PROT:P09599"
/
                                                                                                                                                                                                                                                                                                                                                                                                                                                            VYTKIKKNDRFVHVIGTHLQABDSMCKTSPASVRTNOLKBIODFIKNKNIPNDBYVL
FGGDMNVNKINAENNSDSEYASMFKTLHASIPSYTGHTATWDATTNSIAKYNFPDSPA
EYLDYIIASKDHANPSFIENKVLQPKSPQWTVTSWLKKYTYDDYSDHYPVAATISMK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Η;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1042 GTAAACCAACCGATGCATGCGCAAACTTTACAAATCTTTCATATCCACAAGGATTCCAT 1101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCTAAATACGAAAATTTGTTGATACAATAAAAAATAACTATATTGTTTCAGATAGCAAT 597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGAAAAAGAAAGTACTTGCTTTAGCAGCAGCTATTACAGTAGTAGCTCCTTTACAAAGC 621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTAGTATTTGCACAAACAAATAATAGTGAAAGTCCTGCACCGATTTTAA---GATGGTCA 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTTGCATTTGCTCATGAAAATGATGGGGGAAGTAAAATAAAATAGTTCACCGCTGGTCT 681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AATAGCACATTTGCTTCACTTTCTATGATCCAGACAATGGAAAACATATATTTCCATTT 921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AATCAAGATATGCAGCAAGCATTCTTCTACTTAGGATTATCGCTTCATTATTTAGGAGAT 477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         742 GATATTATGTCTCGCAATACAACACTTGTAAAACAAGATCGAGTTGCACAATTAAATGAA 801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GACATCATGTCTCGTAATACAACGATTGTGAATCCGAATGAAACTGCATTATTAAATGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCGAAACATGCAAAAGAAACAGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AATAAAGATATGAAACAAGCATTCTTCTATTTAGGATTATCTCTTCATTATTTAGGAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 ATGAAAAAGAAAGTATTAGCACTAGCAGCTATGGTTGCTTTAGCTGCGCCAGTTCAAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTGAGGATAAGCATAATGAGGGGATTAACTCTCATTTGTGGATTGTAAATCGTGCAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           682 GCTGAAGATAAACATAAAGAAGCTGTAAATTCTCATTTATGGATTGTAAACCGTGCGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGGCGTGCTGATTTAGAAAATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AATAGTACATATGCTTCTCACTTTTATGATCCGGATACTGGAACAACATATATTCCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 2700;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 65.5%; Score 556; DB 1; Length 27 Best Local Similarity 79.1%; Pred. No. 1.1e-104; Matches 674; Conservative 0; Mismatches 175; Indels
                                             note="pot. rho-independent terminator"
1418. .1423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'note="pot. rho-independent terminator"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1487. .1567
/note="put. signal peptide (SMase)"
                                                                                                                                                             /note="pot. rRNA binding site"
487. 2488
/codon_start=1
Lranel_table=11
/producE="SMase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="mature SMase excenzyme"
2493. .2528
                    note="mature PLC excenzyme"
                                                                                                                                                                                                                                                                                     /protein_id="CAA31333.1"
/db_xref="G1:580761"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1568. .2485
product="SMase"
                                                                                                                    1441. .1446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sig_peptide
                                                                                        -35 signal
-10 signal
RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mat_peptide
                                                terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8 & 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             रुं है दे
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       쉽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
```

```
Read, T. Peterson, S., Tourasse, N., Baillie, L., Paulsen, I., Read, T., Peterson, S., Tourasse, N., Baillie, L., Paulsen, I., Nelson, K., Tettelin, H., Fouts, D., Elsen, J., Gill, S., Holtzapple, E., Okstad, O., Helgason, E., Ristone, J., Wu, M., Kolonay, J. Beanan, M., Doboson, R., Brinkac, L., Gwinn, M., DeBoy, R., Madupu, R., Daugherty, S., Durkin, A., Haft, D., Nelson, W., Peterson, J., Pop, M., Khouri, H., Radinne, D., Benton, J., Mahamond, Y., Jang, L., Hance, I., Weidman, J., Cline, R., Redmond, C., Thwaite, J., White, O., Salzberg, S., Thomason, B., Friedlander, A., Koehler, T., Hanna, P., Kolsto, A.-B. and
                                                                                                                                                                                                                                                                                                                                                                 linear BCT 30-APR-2003 of 18 of the complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cereus group.

(bases 1 to 290214)

Read, T., Peterson, S., Tourasse, N., Baillie, L., Paulsen, I.,

Read, T., Peterson, S., Tourasse, N., Eisen, J., Gill, S., Holtzapple, E.,

Nelson, K., Tettelin, H., Fouts, D., Eisen, J., Gill, S., Holtzapple, E.,

Dokstad, O., Helgason, E., Rilstone, J., Mu, M., Kolonay, J.,

Boanan, R., Brinkac, L., Gwinn, M., DeBoy, R., Madupu, R., Daugherty, S.,

Durkin, A., Haft, D., Nelson, W., Peterson, J., Pop, M., Khouri, H.,

Radune, D., Benton, J., Mahamoud, Y., Jiang, L., Hance, I., Weidman, J.,

Berry, K., Plaut, R., Wolf, A., Watkins, K., Nierman, W., Hazen, A.,

Cline, R., Redmond, C., Thwaite, J., White, O., Salzberg, S.,

Thomason, B., Friedlander, A., Koehler, T., Hanna, P., Kolsto, A.-B. and
                                                                                                                               837
                                                                                                                                                        713 GCGAAACAAGATTACTCTGGAATTGTAAATGATAATACGAAAGATTGGTTCGTAAAAGCA 772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bacillus anthracis str. Ames
Bacillus anthracis str. Ames
Bacteria, Firmicutes; Bacillales; Bacillaceae; Bacillus; Bacillus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The genome sequence of Bacillus anthracis Ames and comparison to closely related bacteria
Nature 423 (6935), 81-86 (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Fraser, C.
Direct Submission
Submitted (26-MAR-2003) The Institute for Genomic Research, 9712
Medical Center Dr, Rockville, MD 20850, USA
Location/Qualifiers
                                                                     778 CGITITAAIGGAAGCGCAGCGCGTIACAGCIGGTIAIATAITCAITIGIGGITIGAIACGIAI
                                            718 GCCGTATCTCAAGAATATGCAGATAAATGCGTGCGGAGGAACTAACACCGGTGACAGGAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /locus_tag="BA0573"
/note="identified by Glimmer2; putative"
/codon start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           organism="Bacillus anthracis str. Ames'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product="hypothetical protein"
/protein_id="AAP24593.1"
/db_xref="G1:30254179"
                                                                                                                                                                                                                                                                                                                                                                        bp DNA
section 3 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          db_xref="taxon:198094"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /mol_type="genomic DNA / strain="Ames"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /locus_tag="BA0573"
140. .949
                                                                                                                                                                                                                                                                                                                                                                          AE017026 290214 Bacillus anthracis str. Ames
                                                                                                                                                                                                                                                                                                                                                                                                                                     AE017026 AE016879
AE017026.1 GI:30254178
                                                                                                                                                                                                                         GTAAATCGCT 847
                                                                                                                                                                                                                                                                 GGAGATCGAT 902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Fraser, C.
                                                                                              773
                                                                                                                                                                                                                           838
                                                                                                                                                                                                                                                                   893
                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                               LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REPERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                RESULT 6
AE017026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                  쉱
                                                                                                                                                                        셤
                                                                                                                                                                                                              ਨੇ
                                                                                                                                                                                                                                                          셤
                                        ठ
                                                                                                                                    ઠે
    TPASHFYDPDNGKTYIPPAKQAKETGAKYFKLAGESYKNKDMKQAFFYLGLSLHYLGD
VNQPMHAANFTNLSYPQGFHSKYENFVDTIKDNYKYTDGNGYWNWKGTNPEEWIHGAA
VNQPMHAANFTNLSYPQGFHSKYENFYDGSTADKRAEATFWHTGKTLMDGAYTGLW
VNKQDYGBGINDDNTKOWPYKAANSQBSTADKRAEATFWHTGKTLMDGAYTGLY
PDYGDRSSRVDPTDONNTLKVMTHVYYMLSTNLYPNWGGSQRADILGAADYIKNQDV
VILNEVPDNSASDRLDGNLTKKEYPNQTAVLGRSNGNEWDKTLGSYSSSTPEDGGVAIV
SKWPIVEKIQYVPAKGCOPDKLSNKGFYYTKIKNNDRFYHYGTHLQAEDSWGKTSP
ASVYTNQLKEIQDFIKNKNIPNDEYVLFGGDWAVNKINAENNSDSEYASMFKTLHASI
PSYTGHTATWDAYTNSIAKYNPPDSPARZLDYIIASKOPWYNKINAENNSDSEYASMFKTLHASI
VYTSWLKKYTXDDYSDHYPVAATISMK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           233 garatrargicicgcaaracaacactrgraaaacaagarcgagrigcacaatraaargaa 292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          533 GTAAACCAACGGTGCATGCGGCAAACTTTACAAATCTTTCATATCCACAAGGATTCCAT 592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCTAAATACGAAAATTTTGTTGATACAATAAAAAAAATAACTATATTGTTTCAGATAGCAAT 597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTAGTATTTGCACAAACAAATAATAGTGAAAGTCCTGCACCGATTTTAA----GATGGTCA 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGATATTGGAATTGGAAAGGAGCAAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCTAAACAAGATTATCCTGGCGTTGTGAAACGATACGACAAAAGATTGGTTTGTAAAAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tctaalalalaaactttgtagatacgataaaagataattataaagtaacggatggaaat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            358 GCGAAACATGCAAAAGAAACAGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  118 GCTGAGGATAAGCATAATGAGGGGATTAACTCCTCATTTGTGGATTGTAAATCGTGCAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              178 GACATCATGTCTCGTAATACAACGATTGTGAATCCGAATGAAACTGCATTATTAAATGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGGCGTGCTGATTTAGAAAATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 293 TGGCGTACGGAGTTAGAGAACGGTATTTATGCTGCTGACTATGAAAATCCTTATTATGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AATAGTACATATGCTTCTCACTTTTATGATCCGGATACTGGAACAACATATTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATGAAAAAGAAAGTATTAGCACTAGCAGCTATGGTTGCTTTAGCTGCGCCAGTTCAAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 418 AATCAAGATATGCAGCAATCTTCTACTTAGGATTATCGCTTCATTATTAGGAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 554, DB 1; Length 2201; Pred. No. 2.8e-104; 0; Mismatches 175; Indels
                                                                                                                                                                                                         53. .899
/gene="h-cerAB"
/note="structural part of gene plc"
/evidence=experimental
                                                                                                                                                                                                                                                                                                                                                         /evidence=experimental
918. 1828
/gene="h-cerAB"
/note="structural part of gene sph"
/evidence=experimental
                                                                                                                                                                                                                                                                                                                  gene="h-cerAB"
'note="linker"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local Similarity 79.1%;
Matches 672; Conservative C
                                                                                                                                                                                                                                                                                                900
                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              473
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
```

유 ઠે g ò

g ઠે

ઠે 셤 ò 원 δ **6** 6 ò

8

```
AITVGASYTKKLPADMIGGRAVIAMSFSEGNEVQRESPASKIMNVKIGVIPLPLYVVLA
AITVGASYTKKLPADMIGGRAVIMINGIFLGDIGKRIPILKNIGGRALLSLETPSLLV
FFNNANDASMEAATMLAKKSNFLYLIYISCLVVGSILGMNRKVLVQGFVRMFIPLLVVG
FNNANDASMEAATMLAKKSNFLYLIYISCLVVGSILGMNRKVLVQGFVRMFIPLVVG
OLIPALIGNMRAYUSGLEGRKPELSGNGVLVKTDNQAELLKGQNTERPIDFS
INGAGLLIATFFIPGGFASKFIGIPGAAINTSTAMANGAELLKGQNTERPIDFS
ISKNLTWPLNYGLGLIYIPLKODAANLSVGTVVVCASVVLTWVASGGFLVGKNMYYPV
ESALVTGCHSGLGGTGDVAILSASNRMELMPRQISTRLGGAAMVVTATILLKMFS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DDQHGTAIVVLAAVINALKVVSKQMDHVKIVINGAGSAGIAIGKLLLKAGAQHTTLVS
LEGIVCEGEAWMNEAQIEVSKKTNREHVRGTLKEAIHQADIFIGVSAPNVLTKELVQM
MNEKAIVFAWANPIPEIFPEDALEAGAAVVGTGRSDYANQVNNVLAFPGIFRGALDVR
ATDITEEMKLAAAYGIANIITDEERNANYVIPNPLDKRVVPSVAEAVAKAAIDSGVAQ
                                                                                                                                                                                                                                  FMPEETGFELLMYIRNQEKEIDIMMISAVHDMGSIKKALQYGVVDYLIKPFTFERKKE
ALTIYREKLTFMKEQQKISQSELDSLILQKEKREPTVTKELPKGLTKQTLQLIWQKIE
SLNGRVFTTDEMAQLVGISRVSIRKYVMFLTDIGVLENEMMYQHVGRPVSKLRCVDQK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /cranslation="mkkigtmllfsillagctoaopdlkkpkkeaiatsstovnapsp
phlsvlkdvnweetpsfioekiplkgieekiamadspilanekneimmyfldpemptg
klsilalkogsvtptpllfooesseptmttsntibsttnelpltmslpssglwvlnix
                                     /transl_table=11
product="response regulator"
/protein_id="AAP24597.1"
/db_xref="GI:30554183"
/translation="MVAMLNTHYLEQVGGFELVQAVNSIKSAIEVLEESRIDLVLLDI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ESCKAIAADEETVYDYTARGNMVAVVSDGTAVLGLGNIGPKAAMPVMEGKSILFKKFA
NVDAPPLCLGTTDVDBIVTLVKNLEPTFAGINLEDIAAPRCFBIEKRLKBETNIPVFH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="similar to GP:1146122, SP:P15300, GB:X14135,
PID:42079, GB:U00096, PID:1651280, PID:1651286, and
PID:1786892; identified by sequence similarity; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement (9996. .10922)
/locus_tag="BA0581"
/note="identified by match to PFAM protein family HMM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     65.1%; Score 552.8; DB 1; Length 290214;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            and GP:10173012;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /locus_tag="BA0579"
/note="similar to GP:10173012, and GP:101730
identified by sequence similarity; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="citrate cation symporter family"
/protein_id="AAP24598.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="transporter, EamA family"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /locus_tag="BA0580"
complement (3356. .9880)
/locus_tag="BA0580"
/codon start=1
/cransl_table=1
/product="lipoprotein, putative"
/protein id="AAP24600.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement (9996. .10922)
/locus_tag="BA0581"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db_xref="GI:30254184"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /locus_tag="BA0579"
                                                                                                                                                                                                                                                                                                                                                                                                                               /locus_tag="BA0578"
6455. .7801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             locus_tag="BA0578"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement (9356.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VNEKYYDQFVI TAE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement (9996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      codon start=1
transT_table=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              codon_start=1/
transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                codon start=1
                                                                                                                                                                                                                                                                                                                                                                                          .7801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7861. .9060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1861. 5060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IMKI PSY"
                                                                                                                                                                                                                                                                                                                                                     KIEPYV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ses
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           / LTD AT 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 TO 12 
/translation="MMMVFTIGWASLSILGGASPSETSKGKTDYKQRSKEQLANGKIH
KWYTEEKAEKGIETTGKEQITLEKEIHETEVGREAKQLGISTEKOVGTLSEBIYET
KVEGPALKLGISIENTSIVNLINQINTIKINDEADKLGISTNGKEIEDIAEBIYET
REBAGKLGISPKGKEIEVLAQEVYEQKVQEEKKEYHDDLYGKDIYQVLSEINEGKVLQ
MADELNMDKTNMNVQELAEKIKKDQPEKGKELNFVPVIRTDADAFYSYLTN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /trānslation="MIRKFKWYICMALLGIAVWGIYTNGITKYVEKLTFFNIQSGKQV
BFNRDEKVILSNVPFIQQLPELLDRGCEVTSLAMMLQYAGITVDKWKLANEIKKVDFMN
DGVRGNPNBGFVGNIYTFSESGYGVXHGPLFQLAKKYLPNKAVDLTGKSIEELYKSVK
AGQPVVIITNATFADLBDEFTTWETNNGDVSITYNBHCVVLIGYDQESVYIRDPLKD
SLDVKVPREKFEQAMVQMGSQAISYVRRSK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QAEKAKTIAH VANDSIVIDGIJGKADTSAIQYTTNRILKNTGVQFIVWDMGIRKS
HPNPQKIGHHFIGGDEGPALKGKEHVSLAEGTLGSKRVFVPI FSETGEQLGAVAVGI
SADNYKEKVKESRHIIYIGGVGVLVQIIGAILLARHIKKSLPGLEPHRIAKILERN
TWLGSVKEGIIAVDKERARVILINNBARALFKKSGLEEDFIGKDVELYMPNSRIKSVLO
TGEVQLNEEQNIYGITUTVTNRVPLYVKEEIVGAIATFRDKTEIRKLAEELTGIRLYAB
ALRAGSHEPMNKHVVLGLTHKKQYEELQKTISGNVSEHQYEIGGVMRIKSPVFAGF
LLGKLSYARRNIKAIISBDSYMPEIDDESITHELITIVGNLIDNALEAVTNCEKKRY
BVKIQHBILITITVOOTGKGIORKEIEELFTKGYSTKGDNRGYGLYLVKESIQRINGE
IHMHSLVGKGTTITIEIPKGRDERQI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="MKKRKRKRKNLWNLWKTITLLVCTVVIFSLLVTDILISHNVERTTEDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /locus tag="BA0577"
/note="similar to GP:1934810, SP:P26908, PID:40173, and
GB:AL009126; identified by sequence similarity; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /locus tag="BA0576"
/note="gimilar to GP:10173010; identified by sequence
gimilarity; putative"
                                                                                                                                                                                                                          /locus tag="BA0574"
963. 1709
/locus tag="BA0574"
/locus tag="BA0574"
/note="Bimilar to GP:16410113, SP:P07114, GB:S96966, GB:X04830, and PID:42533; identified by sequence similarity; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /locus_tag="BA0575"
hote="mainlar to GB:214244, SP:P24311, PID:30151,
GB:214244, SP:P24311, and PID:30151; identified by
sequence similarity; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /transI_table=11
/product="methyl-accepting chemotaxis protein"
/protein id="APP2455.1"
/protein id="APP2455.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          product="conserved hypothetical protein"
/protein_id="AAP24594.1"
db_xref="GI:30254180"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             product="sensory box histidine kinase"
protein id="AAP24596.1"
/db_xref="G1:30254182"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        locus_tag="BA0577"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                locus_tag="BA0575"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /locus_tag="BA0576"
4024. _5628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'codon start=1
'transī table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       codon start=1
transI table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1963. 3945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1963. .3945
                                                                                                                                                                                             .1709
                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
```

CDS

CDS

CDS

```
/translation="MLSLLVVLIGLFFASAGMGDMKIAPYDVWQAITGNGDAMSNMVV
NKFRNPRILIAILVGIALAVAGCILGGLVRNPLASPDIIGITGGASVAVVLFLALFSD
KNNALTVSIHYMPLAAFAGATIVAVFVYLFAMKNDGLSPIILVLIGVGFWALTKAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LEMLIAPIYQASQANVWITGTVYGSSWQNVWYLAPWYLILTYISFIAARHINAQELGD
DIAVGLGVPLIKSRVFMLLLSTALIGGAVAFAGGIGFVGLMAPHISRRLVGSLYGALL
PVAAIVGAILVIAADLIGRTIFTPLEIPAGVFTSAIGAPYFIYLLYKSRNS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cereus group.

1 (bases 1 to 301289)

Ivanova, N., Sorokin, B., Anderson, I., Galleron, N., Candelon, B.,

Kapatral, V., Bhattacharyya, A., Reznik, G., Mikhailova, N.,

Lapidus, A., Chu, L., Mazur, M., Goltsman, E., Larsen, N., D'Souza, M.,

Malunas, T., Grechkin, Y., Pusch, G., Haselkorn, R., Fonstein, M.,

Ehrlich, D. S. D., Overbeek, R. and Kyrpides, N.

Genome sequence of Bacillus cereus and comparative analysis with
                                                                                                                                                                                                                                                                                                       Transva, N., Candelon, B.,

Transva, N., Sorokin, A., Anderson, I., Galleron, N., Candelon, B.,

Kapatral, V., Bhattacharya, A., Reznik, G., Mikhailova, N.,

Lapidus, A., Chu, L., Mazur, M., Goltsman, E., Larsen, N., D'Souza, M.,

Malunas, T., Grechkin, Y., Pusch, G., Haselkorn, R., Fonstein, M.,

Brilch, D.S. D., Overbeek, R. and Kyrpides, N.

Brisct Submission

Submitted (12-MAR-2003) INRA, Genetique Microbienne, Domaine de

Vilvert, Jouy en Josas 78352, France

Location/Qualifiers

1. 301289
Bacteria, Firmicutes, Bacillales, Bacillaceae, Bacillus, Bacillus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                регтеаве
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1362. .2367
/locus_tag="BC0617"
/locus_tag="BC0617"
/locus_tag="BC0617"
/note="similar to Iron(III) dicitrate transport system
2439. .3422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    transport system
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
/transl_table=11
/product="lron(III) dicitrate-binding protein"
                                                                                                                                                                                                                                                    Candelon, B., Gailloux, K., Ehrlich, D.S. and Sorokin, A. The number of ribosomal RNA operons in Bacillus cereus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       organism="Bacillus cereus ATCC 14579"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="Iron(III) dicitrate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein_id="AAP07635.1"
db_xref="GI:29894345"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /db xxef="ATCC:14579"
/db xxef="taxon:226900"
complement (221. 1189)
/locus tag="BC0616"
complement (221. 1189)
/locus tag="BC0616"
/locus tag="bc0616"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /mol_type="genomic DNA"
/strain="ATCC 14579"
                                                                                                                                                                                 Nature 423 (6935), 87-91 (2003)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3435. .4256
/locus tag="BC0619"
3435. .4256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            locus_tag="BC0618"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              locus_tag="BC0618"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               codon_start=1
                                                                                                                                                                                                                                     (bases 1 to 301289)
                                                                                                                                                                    anthracis
                                                                                                                                                                                                                                                                                          Unpublished
                                                                                                                                                                    Bacillus
                                                                                                                                                                                                                          12721630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                       REFERENCE
AUTHORS
TITLE
JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                   JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                            REFERENCE
                                                                                                                                                                                                                      PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGTTTAATGGAAGCGCAGCGCGTTACAGCTGGTTATATTGTTGTGCTTTGATACTAT 837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        115001 GTAAACCAACGATGCATGCTGCAAACTTTACAAATCTTTCGTATCCACAAGGATTCCAT 115060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               115121 GGATATTGGAATTGGAAAGGTACAAATCCAGAAGATTGGATCCATGGAGCGGCAGTAGTG 115180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          114701 GATATTATGTCTCGCAATACAACACTTGTAAACAAGATCGAGTTGCACAATTAAATGAA 114760
                                                                                                                                                                                                                                                                                                                                                                                                                                                         114880
                                                                                             114521 AIGAAAAAGAAAGIACITGCTTIAGCAGCAGCTAITACAITAGTAGCTCCTTTACAAAC 114580
                                                                                                                                                                  114581 GTTGCATTTGCTCATGAAAGGATGGGGAAGTAAAATAAAATAGTTCACCGATGGTCT 114640
                                                                                                                                                                                                                                           114700
                                                                                                                                                                                                                                                                                                                                                                                     114820
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AE017000 301289 bp DNA linear BCT 16-MAY-2003 Bacillus cereus ATCC 14579 section 3 of 18 of the complete genome. AE017000 AE016877 AE017000.1 GI:29894343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         718 GCCGTATCTCAAGAATATGCAGATAAATGGCGTGCGGAAGTAACACCCGGTGACAGGAAAG 777
                                                                                                                                                                                                         177
                                                                                                                                                                                                                                                                             237
                                                                                                                                                                                                                                                                                                                                                    297
                                                                                                                                                                                                                                                                                                                                                                                                                       357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             597
                                                                                                                                  GTAGTATTTGCACAAACAAATAATAGTGAAAGTCCTGCACCGATTTTAA---GATGGTCA 117
                                                               8
                                                                                                                                                                                                                                                                                                                                                  238 TGGCGTGCTGATTTAGAAAATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGAT
                                                                                                                                                                                                                                                                                                                                                                                   114761 redeciracackarrakakakacesrarrakacerecrearekakakareerrarrarekr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCTAAATACGAAAATTTTGTTGATACAATAAAAATAACTATATTGTTTCAGATAGCAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGATATTGGAATTGGAAAGGAGCAAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCTAAACAAGATTATCCTGGCGTTGTGAACGATACGACAAAAGATTGGTTTGTAAAAGCA
                                                             ATGAAAAAGAAAGTATTAGCACTAGCAGCTATGGTTGCTTTAGCTGCGCCAGTTCAAAGT
                                                                                                                                                                                                       GCTGAGGATAAGCATAATGAGGGATTAACTCTCATTTGTGGATTGTAAATCGTGCAATT
                                                                                                                                                                                                                                         114641 GCTGAAGATAAACATAAAGAAGGCGTAAATTCTCATTTATGGATTGTAAACCGTGCGATT
                                                                                                                                                                                                                                                                             GACATCATGTCTCGTAATACAACGATTGTGAATCCGAATGAAACTGCATTATTAAATGAG
                                                                                                                                                                                                                                                                                                                                                                                                                       AATAGTACATATGCTTCTCACTTTTATGATCCGGATACTGGAACAACATATATTCCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCGAAACATGCAAAAGAAACAGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   418 AATCAAGATATGCAGCAAGCATTCTTCTACTTAGGATTATCGCTTCATTATTAGGAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GIGAAICAGCCAAIGCAGCAAACTITACGAAICITICTIAICAAIGGIIIICCAI
                            Gaps
                             ب
.
             Pred. No. 3e-104;
; Mismatches 177; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bacillus cereus ATCC 14579
Bacillus cereus ATCC 14579
                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGAGATCGTTAA 115372
              78.94;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTAAATCGCTAA 849
                                 Conservative
              Similarity
                                 672;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        778
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         115301
                                                                                                                                                                                                                                                                                                                                                                                                                              298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                115361
                                                                                                                                                                                                             118
                                                                                                                                                                                                                                                                                  178
                                                                                                                                        5
              Best Local
Matches 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AE017000
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           움
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                               중 음
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠ
                                                                                                                                                                          요
                                                                                                                                                                                                                                         გ
                                                                                                                                                                                                                                                                              ઠ
                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                   셤
                                                                                                                                        ò
                                                                                                                                                                                                           ઠે
```

σ

gene

CDS

gene

CDS

CDS

```
/translation="MLEQFHIHADLKQQLSTTHEKNKQEAGENAHLIGTKIYKASDNS ILEDAITALLIGKNILLKGFTGKGKTVLASTLSSLFQKPMEISINGSVDLDVEGILGYN TLOTKDGASEVSFVNGPLMKAMKNGHFLYIDEITMAKPETLLHGALDYRKNITNPF TQEVYYGDDSYRVITNPFTGENTARMKNGHFLYIDEITMAKPETLPLHGALDYRKNITNPFTQEVYYGDDSYRVITANFATNEGYYGTSELNEALKNRFVIIBEVPIQGDYLKELLAESKL NDVATIEKFVAFRASDLMPLARDGRVSEEAASIRGIIDACDLGVYIPVNRAIERSIIAK LNDETEQMTYRELAESYFEG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60486 GATATTATGTCTCGTAATACAACACTTGTAAACAAGATCGAGTTGCACTATTAAATGAA 60545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60605
                                                                                                                                                                                                                                                                                                                                                         CYLSLTSDKYEMFNNEYFEQIEAILHETFQARNTEDIMYIVEKIRYRLEELLESDMLN
NYFGHAPLYLSVLADEKNCRYEDLANDDTQLIDDENKNKMDESFSTWHRENKNNENE
NYFGHAPLYLSVLANTARNENCHNDEDALGSVORTGSVKKMOESFSTWHRENKNNENE
SONDGAYGSYTKTNMTGYTARESEDEDGALGSVQTGSQVKTGYSNFDGALGKALTERAASHA
TNANSDKYVCRLAKKARITETRYTEKQPRWFYKKGQESQBLDVARQLLIETTEN
TNANSDKYVCRLAKKELRIYTEKQPRWFYKKGQESQBLDVARQLLIETVNCKGES
TKKSVVLFHEALKSLKI PHAISGFWEDASSAKPEDKPNVIHEVVNYKNSTLPNVGPEI
                                                                                                                                                                                                                                                                        /trānslation="MRQIFSDKKIDASLFLQMENLMYALLKEDDAYLEYGYKAYYDEI
EKKVVISHFWDDRKEEDTVIGLKSEVPLKALGNKHYSDMTLIRSYAIELQESPLKKPL
TQLFVLLEDLRVEEIVKNLRPGTKHVFKRRKEMYRNYFSSQNEINRVRNYHGDRLFCL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MQLREEBDNRDGYIIRIVSEKLAKRPEKHKFLLVFTDGEPSALDYQQDGILDTHRAVK
LARKSGMEVIGIFIEBGEAKBATYQLMKNIYNHPLVANHAEDLRLKIKPLLKKLLLK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTAGTATTTGCACAAACAATAATAGTG---AAAGTCCTGCACCGATTTTAAGATGGTCA 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCTGAGGATAAGCATAATGAGGGGATTAACTCTCATTTGTGGATTGTAAATCGTGCAATT 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  298 AATAGTACATATGCTTCTCACTTTTATGATCCGGATACTGGAACAACATATATTCCTTTT 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                          factor type A domain protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60306 ATGAAAAAAAAGTACTTGCTTTAGCGGCAGCTATTACATTAGTTGCTCCATTACAAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               178 GACATCATGTCTCGTAATACAACGATTGTGAATCCGAATGAAACTGCATTATTAAATGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60366 GTTGCATTTGCTCATGAAATGATGGGGGACAGAGATTTGGAGTTATTCCGCGCTGGTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGCGTGCTGATTTAGAAATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60546 receracreaerracaeaacecrarrarecrecreacrareaaarcerrarrar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATGAAAAAGAAAGTATTAGCACTAGCAGCTATGGTTGCTTTAGCTGCGCCAGTTCAAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 301289;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>ب</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
     AVEWVDRTIANERPPYYDGGFEYLLEVAIPYKFQPETK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /transī_table=11
product="cardiolipin synthetase"
/protein id="AAR07643.1"
/db_xref="GI:29894353"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Mismatches 177;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. 3e-104;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 552.8;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement (9837. .10730)
/locus tag="BC0625"
complement (9837. .10730)
/locus tag="BC0625"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /locus_tag="BC0626"
                                                                                                                                                                                        /product="von Willebrand
/protein_id="AAP07641.1"
/db_xref="GI:29894351"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement (10858. .12387)
/locus_tag="BC0626"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transT_table=11
/product="NorQ protein"
/protein_id="AAP07642.1"
/db_xref="GI:29894352"
                         complement (7950. .9833)
/locus tag="BC0624"
complement (7950. .9833)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EC number="2.7.8.-"
                                                                                                          locus_tag="BC0624"
                                                                                                                                                                   table=11
                                                                                                                                          /codon_start=1
/trans] table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             codon start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              65.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  78.98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches 672; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              transI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TIE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /transl_table=11
/producE="L-threonine 3-dehydrogenase"
/producE="L-threonine 3-dehydrogenase"
/protein_id="AAP07539.1"
/db_xref="G1:2989439"
/translation="MKKILVTGSLGQIGSELVMKLRDVYGASNVIATDIRETDSEVVT
SGPPETILDVTGGKLHDIAKRNBYDTITHLAALLSATAERNBLFAMMINGGINVALE
AARELNCKPTPGSIGAFGSTPKDNTPQDTIQRPTMYGNNKVAGELLCDYYHQKFG
VDTRGYNRPGLISYAVAPPGGGTTDYAVBIYYEAIKKGAYTSYIAEGTYMDMYMPDAL
QAIISLMRAADPSKLVHRNAFNITAMSPEPEQIAASIRKHIPTFTMDYAVDPARQTIAD
                                                                                                                                                                                     /trānslation="MQKALETKRLTLSYGETIIIDELNLEIPKGEITIFIGSNGCGKS
TLLRELARLIKFTTGDILLDNQAIQSMQTKQIARQMAILPGGPQAPEGLTVLQLVKQG
TYSYGTWLKQWSEKDEENVQKALAATGWTEFARDVHALSGGGRQRANIAMTLAQDTD
IILLDBPTTYLDWHTADIBVLDLLFELNETEQRTIVMVLHDLMLACRYADNIVAIQDKQ
IYAQGKPEEVVDEKLVRDVFRMECQISTDPLFGTFLCIPHGRGRRVVKEVAQAMR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /tränslation="MAFTESDVYNNTAFFBQYMKRYYERNSPNESIEKPVFFQLIGHV
QGKQILDLGGCOPAKFQAELLEKGCYSTYGIEGSBLMYERKAKÜLENKOGSVHFUNLKD
YYPESSTFDLYCPRIALHYIERLDTIFQNYFQTLKTNGTFTFSVQHPVITSSFESLQT
SGKRTIWLVDDYFKLGKRVEPWIDQEVIKYHRTTEBYFTLLQQAGFTITSLKBATPNP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /protein_id="AAP07638.1"
/db_xref="GI:22894348"
/db_xref="GI:22894348"
/translation="MSSKTIAKFLEENLEDLKSKGLYNVIDPLESSNGPIITIGGKEY
INLSSNNYLGLANTSKERENLGEAHKYGVGAGAVRTINGTLDLHIKLEETIAKFKHT
EAAIAYQSGFNCNMAAISAVMDKNDAILSDELNHASIIDGSRLSKAKIIVYKHSDMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LGKGAGTVKHFGLSDKVDFQIGTLSKAIGVIGGYVAGKQNLIDWLKVRSRPFLFSTAL
TPADAAAACMRSIEILMESTELHDRLWENGRYLKQGLKELGFNIGESETPITPCIIGDE
VLTQEFSKRLNEEGVYAKSIVFPTVAKGTGRVRNMPTAAHTKEMLDEAILKYEKVGKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /trānslation="MQRVDVVYALIHDEETDXILMVHNVEQNVWSLPGGAVEKGEILB
EALIREVKEETGLTATLGGLVAINEKFFEESGNHALFFTFRANVEKGELIAEDEGEIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LRQKAIAAKESGLYNKLMVITDGVFSMDGDVAKLPEIVEIAEELDLMTYVDDAHGSGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  producE="Phosphohydrolase (MutT/nudix family protein)"
protein_id="AAP07640.1"
db_xref="G1:29894350"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /locus_tag="BC0621"
/EC_number="2.3.1.29"
/codon_start=1
/crans1_table=11
/producT="2-amino-3-ketobutyrate_coenzyme_A_ligase"
                                                                             product="Iron(III) dicitrate transport ATP-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SWPNSIDATAAMKEWGPKAEYDLDKMTTDMLAKLKKKLTAELVMN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="Ubiquinone/menaquinone biosynthesis methyltransferase UBIE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IY FODEEEY KRRLRI PLFLLFSCTK'
                                                                                                                                                                                                                                                                                                                            complement (4285. .5016)
/locus tag="BC0620"
complement (4285. .5016)
/locus tag="BC0620"
/EC_number="2.1.1."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /procein_id="AAP07637.1"
/db_xref="GI:29894347"
                                                                                                                                    /protein_id="AAP07636.1"
/db_xref="GI:29894346"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /EC number="1.1.1.103"
/codon start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /locus_tag="BC0623"
7490. _7912
/locus_tag="BC0623"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /locus_tag="BC0621"
5230. _6420
locus_tag="BC0619"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /locus_tag="BC0622"
6465. 7430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     locus_tag="BC0622"
                                                   trans table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         codon start=1
transT table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /codon_start=1
/transl_table=
                                                                                                             protein fecE'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5230. .6420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6465. .7430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7490. .7912
```

셤

셤 ઠે

ò

8 8

ద ઠે 8 ઠે 셤 È 셤 ò 셤 ઠે a

કે

```
YMLSTYLTYPWWGQTERADLIGAADYIKWQDVVILNEVPDÑSASDRLÍGNLKKEYPWQT
AVLGRSSGSBWDKTLGNYSSSTPEDGGVAIVSKWPIAEKIQYVFAKGGCDPDLISNKGF
YYKIKKNDRPYHUGTHLGABDSWGCKISPASVRTDQLKEIQDFIKNKNIPNDEYUL
IGGDWHVNKINAENKNDSEYASMFKTLNASVPSYTGHTATWDATTNGIAKYNPEPDSPA
EYLDYIIASKDHANPSYIENKVLQPKSPQWTVTSWFKNIRIMITLIIQVBATISMK"
                                                                                                                                                                                                                                                                                               /traislation="MKKKVLALAAAITLVAPLQNVAFAHENDGGSKIKIVHRWSAEDK
HKEGVNSHLMIVNRALDIMSRNKTIVKQDRVALLNEWRTEELENGIXAADYENPYYDNS
THSSHPYDDPNGKTYIPYRKQAKETGAKFFKLAGESYKNKDMKQAFFYLGGISLHYLGD
VNQPHHAANFTNLSYPOGFHGKYENFVDTIKONYKVTDGNGYNNWKGTNPEDHTHGAA
VVAKQDYAGIVNDNTKDWFVRAAVSQEYADKWRAEVTPMTGKRLMDAQRVTAGYIQLM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /transl_table=11
/product="sphingomyelin-specific phospholipase"
/protein_id="aA04075.1"
/db_xref="GI:28414377"
/translation="MKGKLIKGVLSLGVGLGALYSGTSAQAEASTNQNDTLKVMTHNV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Argananaganagractrecretrageageagerartracarrageagerecretracanae 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GITGCALTIGGTCALGAAAAGGAIGGGGGAAGIAAAATAAAAATAGITCACCGAIGGICT 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCTGAAGATAAACATAAAGAGGCGTGAATTCTCATTTATGCATTGTAAACCGTGCAATT 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GACATCATGTCTCGTAATACAACGATTGTGAATCCGAATGAAACTGCATTATTAAATGAG 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GATATTATGICICGIAATAAAACACTIGIAAAACAAGAICGAGTIGCACTATTAAAIGAA 420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGGCGTGCTGATTTAGAAAATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGAT 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AATAGTACATATGCTTCTCACTTTTATGATCCGGATACTGGAACAACATATATTCCTTTT 357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCGAAACATGCAAAAGAAACAGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAA 417
                                                                                                                                                                       /gene="po-plc"
/codon start=1
/transl table=11
/product="phosphatidylcholine-specific phospholipase C"
/protein_id="AAA40751.1"
/db_xref="GI:28414376"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTAGTATTTGCACAAACAAATAATAGTGAAAGTCCTGCACCGATTTTAA---GATGGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCTGAGGATAAGCATAATGAGGGATTAACTCTCATTTGTGGATTGTAAATCGTGCAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATGAAAAAGAAAGTATTAGCACTAGCAGCTATGGTTGCTTTAGCTGCGCCAGTTCAAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 64.4%; Score 546.4; DB 1; Length 2130; 78.4%; Pred. No. 1e-102; ive 0; Mismatches 181; Indels 3;
organism="Bacillus cereus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   note="sphingomyelinase"
codon start=1
trans1_table=11
                    /mol_type="genomic DNA"
/strain="569"
                                                                                                                                                                                                                                                                                                                                                                                                                           complement (1085. .1103)
                                                        /db_xref="taxon:1396"
                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="putative"
/bound_moiety="PlcR"
                                                                               12. ... 57
/bound_moiety="PlcR"
                                                                                                                                          /gene="pc-plc"
181. .1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1109. .2110
/gene="sph"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            dene="sph
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity 78.4
Matches 668; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                          PDTYGDR"
                                                                               protein bind
                                                                                                                                                                                                                                                                                                                                                                                                                             protein_bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       н
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                               60845
                       60665
                                                                                                      60725
                                                                                                                                                                                    60785
                                                                                                                                                                                                                                                                                                                                               60905
                                                                                                                                                                                                                                                                                                                                                                                                                               60965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61086 cerrinaniedanecacacenerracrecresaranarracacerriserrisaraceras
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AY195600

2130 bp DNA linear BCT 23-OCT-2003
Bacillus cereus strain 569 phosphatidylcholine-specific
phospholipase C (pc-plc) and sphingomyelin-specific phospholipase
(sph) genes, complete cds.
AY195600
                                                                                                                                            477
                                                                                                                                                                                                                            537
                                                                                                                                                                                                                                                                                                         597
                                                                                                                                                                                                                                                                                                                                                                                       657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bacteria, Firmicutes, Bacillales, Bacillaceae, Bacillus, Bacillus cereus group.

(bases 1 to 2130)

Pomerantes A.P., Kalnin, K.V., Osorio, M. and Leppla, S.H.

Phosphatidylcholine-Specific Phospholipase C and Sphingomyelinase Activities in Bacteria of the Bacillus cereus Group

Infect. Immun. 71 (11), 6591-6606 (2003)
                                                                                                                                                                                                                                                 60906 GGATATTGGAAACTGGAAAAGGTACGAATCCAGAAGATTGGATTCATGGAGCGGCAGTAGTT
                       AATAGCACATTTGCTTCACATTTCTATGACCCTGACAATGGGAAAACTTATATTTCCGTAT
                                                              GCGAAACATGCAAAAGAAACAGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAA
                                                                                                      50666 GCAAAGCAAGCAAAGGAAACAGGAGCTAAATATTTTAAATTAGCTGGTGAGTCTTATAAA
                                                                                                                                              AATCAAGATATGCAGCAAGCATTCTTCTACTTAGGATTATCGCTTCATTATTTAGGAGAT
                                                                                                                                                                                  50726 AATAAAGATATGAAACAAGCGTTCTTCTATTTAGGATTATCTCTTCATTATTTAGGGGAT
                                                                                                                                                                                                                            GTGAATCAGCCAATGCAGCAACTTTACGAATCTTTCTTATCCAATGGGTTTCCAT
                                                                                                                                                                                                                                                                                                           TCTAAATACGAAAATTTTGTTGATACAATAAAAAATAACTATATTGTTTCAGATAGCAAŢ
                                                                                                                                                                                                                                                                                                                                                                                       GGATATTGGAATTGGAAAGGAGCAAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCTAAACAAGATTATCCTGGCGTTGTGAACGATACGACAAAAGATTGGTTTGTAAAAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCGAAACAAGATTACGCTGGCATTGTAAATGATAATACGAAAGATTGGTTCGTGAGAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCGTATCTCAAGAATATGCAGATAAATGGCGTGCGGAAGTAACACCGGTGACAGGAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCTGTATCACAAGAATATGCAGATAAATGGCGCGCTGAAGTTACACCAATGACAGGTAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGTTTAATGGAAGCGCAGCGCTTACAGCTGGTTATATTCATTTGTGGTTTGATACGTAT
  4350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NIH, 30 Convent Drive MSC 4350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             version replaced gi:28414375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Drive MSC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2 (bases 1 to 2130)
Pomerantsev, A.P., Kalnin, K.V. and Leppla, S.H.
Direct Submission
Submitted (11.DEC-2002) NIAID, NIH, 30 Convent
Bathesda, MD 20892, USA
3 (bases 1 to 2130)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pomerantsev, A.P., Kalnin, K.V. and Leppla, S.H..
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Submitted (19-FEB-2003) NIAID, N Bethesda, MD 20892, USA Sequence update by submitter On Feb 19, 2003 this sequence ve 1, 2130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AY195600.2 GI:28416296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61146 GGAAATCGTTAA 61157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bacillus cereus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bacillus cereus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTAAATCGCTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    778
                                                                                                                                                                                                                                                                                                           538
                                                                                                                                                                                                                                                                                                                                                                                           598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      718
                                                                 358
                                                                                                                                                418
                                                                                                                                                                                                                            478
                                                                                                                                                                                                                                                                    50786
                                                                                                                                                                                                                                                                                                                                                   60846
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              61026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    838
                         90909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REMARK
COMMENT
FEATURES
BOUICG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PUBMED
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AY195600
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
```

117

9

g

ઠે 셤 ठे

ઠે 셤 8 g

g

ઠે

è

g

ठ g ò

```
/codon start=1
/transI_table=11
/transI_table=11
/product="prespingomyelinase (AA -27 to 306)"
/product="prespingomyelinase (AA -27 to 306)"
/protein id="CAA31214.1"
/db_xref="GA3.1214.1"
/db_xref="GA3.1214.1"
/db_xref="GA3.12189"
/db_xref="SWISS-PROT:P11889"
/db_xref="SWISS-P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BCT 26-APR-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    552 ITITGTIGATACAATAAAAATAACTATATIGTTICAGATAGCAATGGATATIGGAATTG 611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61 CTTTGTAGATACGATAAAAGATAATTATAAAGTAACGGATGGAAATGGGTATTGGAACTG 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181 CGCTGCCATTGTAAATGATAACGAAGATTGGTTCGTAAGAGCAGCTGTATCACAAGA 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  241 ATATGCAGATAAATGGCGCCCGGTTACACCAATGACAGGTAAGCGTTTAATGGATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               M35411.1 GI:143048
hemolysin.
bacillus cereus
Bacillus cereus
Bacteria; Firmicutes; Bacillales; Bacillus; Bacillus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATATGCAGATAAATGGCGTGCGGAAGTAACACCGGTGACAGGAAAGCGTTTAATGGAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCATGCAGCAAACTTTACGAATCTTTCTTATCCAATGGGTTTCCATTCTAAATACGAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1 GCATGCGGCAAACTTTACGAACCTTTCGTATCCACAAGGATTCCATTCTAAATATGAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAAAGGAGCAAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCAGCTAAACAAGATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   672 TCCTGGCGTTGTGAACGATACGACAAAAGATTGGTTTGTAAAAGCAGCCGTATCTCAAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCAGCGCGTTACAGCTGGTTATACATTTGTGGTTTGATACGTATGTAAATCGCTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 1622;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        516. .1433
/product="sphingomyelinase (AA 1 - 306)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'note="signal peptide (AA -27 to -1)"
                                                                                                                                                                                                                   site"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 255.6; DB 1;
Pred. No. 1e-42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DNA
cds.
                                                                                                                                                                                            122. .426
/note="pot. ribosome binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Mismatches
                                                                                                                                              388. .404
/note="inverted repeat A'"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1459. .1471
/note="inverted repeat B'"
                                                                  'note="inverted repeat A"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ā
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          280 bp
partial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="inverted repeat
163: .368
'note="-35 region"
                                                                                              186. .392
'note="-10 region"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BACHEMOL
B.cereus hemolysin gene,
M35411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       30.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1441. .1453
                                                                                                                                                                                                                                               135. .1436
                                             .381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity 82.1
Matches 294; Conservative
                                                  repeat_unit
                                                                                                                                              repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       612
     promoter
                                                                                              promoter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 10
BACHEMOL
                                                                                                                                                                                            RBS
                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   臼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /clone lib="pucl8."

/codon start=2
/transl_table=11
/product="phosphatidylcholine-hydrolyzing phospholipase C"
/product="phosphatidylcholine-hydrolyzing phospholipase C"
/product="CAA31213.1"
/db_xref="GCA31213.1"
/db_xref="GOA:P05598"
/db_xref="GOA:P05598"
/db_xref="SWISS-PROT:P05598"
/translation="HAANFTNLSYPOGFHSKYENFVDTIKDNYKVTDGNGYWNWKGTN
PEDWIHGHAAVVAKODYAGIVNDNTKDWFVRAAVSGEYADKWRAEVTPWTGKRLWDAQR
VTAGYIQLWFDTYGNR."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BCT 26-JUN-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 (bases I to 1622)
Yamada,A., Tsukagoshi,N., Udaka,S., Sasaki,T., Makino,S.,
Yawada,A., Tsukagoshi,N., Udaka,S., Sasaki,T., Makino,S.,
Nakamura,S., Little,C., Tomita,M. and Ikezawa,H.
Nucleotide sequence and expression in Escherichia coli of the gene coding for sphingomyelinase of Bacillus cereus
Eur. J. Blochem. 175 (2), 213-220 (1988)
                                                                       99
                                                                                                                                                                                                                   597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 960
                                                                                                                                                                                                                                                                                                                                                900
                                                                                                                                              GGATATTGGAATTGGAAAGGAGCAAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCA 657
                                                                                                                                                                                                                                                                                                                                                                                                                GCTAAACAAGATTATCCTGGCGTTGTGAACGATACGACAAAAGATTGGTTTGTAAAAGCA 717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCGTATCTCAAGAATATGCAGATAAATGGCGTGCGGAAGTAACACCGGTGACAGGAAAG 777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGTTTAATGGAAGCGCAGCGCGTTACAGCTGGTTATATTCATTTGTGGTTTGATACGTAT 837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bacillus
                                                TCTAAATACGAAAATTTTGTTGATACAATAAAAATAACTATATTGTTTCAGATAGCAAT
                                                                                                                                                                                                                                               GCTGTATCACAAGAATATGCCAGATAAAATGGCGCCCTGAAGTTACACCAATGACAGGTAAG
                         AATCAAGATATGCAGCAATCTTCTTCTACTTAGGATTATCGCTTCATTATTAGGAGAT
                                                                                                                     Bacillus cereus
Bacteria, Firmicutes, Bacillales, Bacillaceae, Bacillus,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                X12711.1 GI:39439
phospholipase; phospholipase C; serine carboxypeptidase;
sphingomyelinase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BCPLC 1622 bp DNA linear B. cereus gene for sphingomyelinase (EC 3.1.4.3). X12711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ly reviewed (25/4/89) by Tsukagoshi N.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cereus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'mol_type="genomic DNA'
| Btrain="IAM1208"
| db xref="taxon:1396"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'organism="Bacillus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1021 GGAGATCGTTAA 1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bacillus cereus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTAAATCGCTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cereus group.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Data kindly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   88296483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               838
                                                                       601
                                                                                                                  478
                                                                                                                                                                   199
                                                                                                                                                                                                                   538
                                                                                                                                                                                                                                                                                                                 598
                                                                                                                                                                                                                                                                                                                                                               781
                                                                                                                                                                                                                                                                                                                                                                                                                658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              901
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 178
                                                                                                                                                                                                                                                                 721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMMENT
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
```

```
/translation="Wikikgiimglclsasivalsgadbasaccdbesvkdqlaphdign
Klapsklawarheskneinthimlengaekilakhytgaqldlvreiknynkeiaqgi
Fladhkopyydknyflynpkthyktylagephaadotgykrybiseeberg
Fynigllaihyytdlsgophhannfyllshpvsyhcyybnydfrqierqiegasbesrakp
Ctddvsewfhenakraqadypkivntiikksyiqqisdsgokdrykkaykaykgrk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              78 TGCTTGTGGTGAAAGTGTAAAAGACCAAATTGCGCCGCATGATATTCAAAATT 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTACGAGAATCCTTATTATGATAATAGTACATATGCTTCTCACTTTTATGATCCGGATAC 335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GATTGAAGGAGCAGCGGTAGCAGCTAAACAAGATTATCCTGGCGTTGTGAACGATACGAC 695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  738 TAAAAATCTTATATACAAGGGCTTTCAGATTCTCAAAAGATAGAAGAGTTGGAAAAAAGC 797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                138 ACCTAGTAAATTAGGCTGGTCACAGCATCCTTCAAAAATGAAATTAATACACTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGGTTGTTTAATCAAGCAGAAAAATACTTGCCAAACATGTAACTGGTGCCCAACTTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         96 TGCACCGATTTTAAGATGGTCAGCTGAGGATAAGCATAATGAGGAGTTAACTCTCATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGGATTGTAAATCGTGCAATTGACATCATGTCTCGTAATACAACGATTGTGAATCCGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       trtagtaagagaattaaaaattataataagaaattgctcaaggaatattgatgcaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGGAACAACATATATTCCTTTTGCGAAACATGCAAAAGAAACAGGCGCAAAATATTTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               378 İCATAAAACCTACATAGCGGGATTTCCTAATGCTAAAGATACAGGCACTAAATACTTTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 516 TICTTATCCAATGGGTTTCCATTCTAAATACGAAAATTTGTTGTTGATACAATAAAAATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            618 Trrccaggcgrccagagrcagaagcgaagrggrccrcracagagagrgraard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                438 TATTTCCATTGAAGAGATCAAGAAGCTTTGAAAAAGCATTTTATAACTTAGGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       678 driccárdada a receada de de desectada de desectada de desectada de desectada de desectada de desectada de de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de desectada de decendada de desectada                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     696 AAAAGATTGGTTTGTAAAAGCAGCCGTATCTCAAGAATATGCAGATAAATGGGCGTGCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 20.8%; Score 176.8; DB 1; Length 825; Best Local Similarity 52.3%; Pred. No. 2e-26; Matches 391; Conservative 0; Mismatches 357; Indels 0
       organism="Listeria seeligeri"
                                                                                                                                                                                                                         /transl_table=11
/product="phospholipase"
/protein_id="AAO19486.1"
/db_xref="GI:29373300"
                            /mol_type="genomic DNA"
/db_xref="taxon:1640"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  756 AGTAACACCGGTGACAGGAAAGCGTTTA 783
                                                                                                                                                 /gene="ploB"
/note="lecithinase"
/codon_start=1
/transl_table=11
                                                                                                   /gene="plcB"
1. .>825
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             636
                                                                            gene
                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                     ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
1 (bases I to 280)
Gilmore, M.S., Gilmore, K.S. and Goebel, W.
A new strategy for ordered DNA sequencing based on a novel method for the rapid purification of near-milligram quantities of a cloned Gene Anal. Tech. 2, 108-114 (1985)
Original source text: B.cereus DNA.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                       /protein_id="AAA22524.1"
/db_xref="G1:143049"
/translation="NSHLMIVNRAIDIMSRNTTLVKQDRVALLNEWRTELENGIYAAD
YENPYYDNSTFASHFYDPDNGKTYIPYAKQAKETGAKYFKLAGESYKNK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            825 bp DNA linear BCT 30-MAR-2003
Listeria seeligeri phospholipase (plcB) gene, partial cds.
AY150839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   145 AACTCTCATTTGTGGATTGTAAATCGTGCAATTGACATGTCATGTCTGGTAATACAAGGATT 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TATTCTGCTGATTACGAGAATCCTTATTATGATAATAGTACATATGCTTCTCACTTTTAT 324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GATCCGGATACTGGAACAACATATATTCCTTTTGCGAAACATGCAAAAGAAACAGGCGCA 384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2 (bases 1 to 825)
Watcher, M., Schmid, M. and Wagner, M.
Direct Submisson
Bubmitted (11-SEP-2002) Lehrstuhl fuer Mikrobiologie, Am Hochanger
4, Freising 85354, Germany
1. Preising 85354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Nucleic acid-based, cultivation-independent detection of Listeria
app. and genotypes of L. monocytogenes
FRMS Immunol. Med. Microbiol. 35 (3), 215-225 (2003)
22535694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTGAATCCGAATGAAACTGCATTATTAAATGAGTGGCGTGCTGATTTAGAAAATGGTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Listeria seeligeri
Listeria seeligeri
Bacteria, Firmicutes, Bacillales; Listeriaceae; Listeria.
1 (bases 1 to 825)
Schmid, M., Walcher, M., Bubert, A., Wagner, M., Wagner, M. and Schleifer, K.H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       22.3%; Score 189.4; DB 1; Length 280; 79.9%; Pred. No. 5.6e-29; ative 0; Mismatches 56; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAATATTTTAAATTAGCTGGTCTTACAAAAATAAA 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAATATTTTAACCTTGCTGGTCAAGCATACCAAAATCAA

    280
    /organism="Bacillus cereus"
/mol_type="genomic DNA"
    /db_xref="taxon:1396"

                                                                                                                                                                                                                                                                                                                     'note" hemolysin"
                                                                                                                                                                                                                                                                                                                                                                           table=11
                                                                                                                                                                                                                                                                                                                                               codon start=2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AY150839.1 GI:29373299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 79.91
Matches 223; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2648840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             382
                                                                                                                                                                                                    Bource
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bource
                                                                                                                   JOURNAL
                                                                                                                                               COMMENT
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 11
AY150839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FRATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
```

셤 ઠે

셤 ઠ

ઠે 유 ઠે 윱 ઠે d

```
PAT 02-SEP-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   140 CACATAAACTTAGTTGGTCCGCGGATAACCCGACAAATACTGACGTAAATACGCACTATT 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    158 GGATTGTAAATCGTGCAATTGACATCATGTCTCGTAATACAACGATTGTGAATCCGAATG 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    380 ATAATACTTATTTGCCGGGTTTTGCTAATGCGAAAATAACAGGAGCAAAGTATTTCAATC 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       398 TIGCIGGICAAGCATACCAAAATCAAGATATGCAGCAAGCATTCTTCTACTTAGGATTAT 457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        440 AATCGGTGACTGATTACCGAGAAGGGAAATTTGACACAGCGTTTTATAAATTAGGCCTAG 499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   620 ATCAAĞCAACGGAAGACATGGTAGCAAAAAGATTTTGCTCAGATGACGTGAAAGACTGGC 679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rcrargaaaargcgaaaaggcgaaagcggacraccggaaaragrcaargcgaaaacra 739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          278 ACGAGAATCCTTATTATGATAATAGTACATATGCTTCTCACTTTTATGATCCGGATACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              338 GAACAACATATATTCCTTTTGCGAAACATGCAAAAGAAACAGGCGCAAAATATTTTAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       200 GGCTTTTTAAACAAGGGGAAAAATACTAGCTAAAGATGTAAATCATATGCGAGCTAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         260 TAATGAATGAACTTAAAAATTCGATAAACAAATAGCTCAAGGAATATATGATGCGGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAATCCATTATTATGGGATATTAGTCAACCTATGCACGCCAATAATTTTAGCGCAATAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTTATCCAATGGGTTTCCATTCTAAATACGAAAATTTTGTTGATACAATAAAAATAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATATTGTTTCAGATAGCAATGGATATTGGAAATGGAAAGGAGCAAACCCAGAAGATTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTGAAGGAGCAGCGGTAGCAGCTAAACAAGATTATCCTGGCGTTGTGAACGATACGACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CACCGATTTTAAGATGGTCAGCTGAGGATAAGCATAATGAGGGGATTAACTCTCATTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                        Listeria monocytogenes EGD-e
Listeria monocytogenes EGD-e
Bacteria; Firmicutes; Bacillales; Listeriaceae; Listeria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                 RECHERCHE
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 870;
                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                 1. .870

"Corganism="Listeria monocytogenes EGD-e"

/mol_type="unassigned DNA"

/db_xref="taxon:169963"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                   A
                                                                                                                                                                                                                                            Kunst, F. and Glaser, P.
Listeria inocua, genome and applications
Patent: WO 0228891-A 2646 11-APR-2002;
INSTITUT PASTEUR (FR), CENTRE NATIONAL DE
SCIENTIFIQUE (CNRS) (FR)
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 154.4; DB 6;
Pred. No. 8.2e-22;
); Mismatches 291;
                                                                                       DNA
                                                                                      170 bp Di
WO0228891.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   740 AAAATCATATTTAGTAGGA 759
   740 AAAAATCATATTTAGTAGGA 759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAGATTGGTTTGTAAAAGCA 717
                                                                                                        2646 from Patent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ó
                                                                                                                                         AX415655.1 GI:21448112
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Local Similarity 53.1%;
Matches 329; Conservative C
                                                                                                      Sequence AX415655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  698
                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                      DEFINITION
                                                                                                                       ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                             REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                 JOURNAL
                                                     RESULT 13
                                                                   AX415655
LOCUS
                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                            SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 염
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                        PAT 02-SEP-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGATTGTAAATCGTGCAATTGACATCATGTCTCGTAATACAACGATTGTGAATCCGAATG 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            260 TAATGAATGAACTTAAAAATTCGATAAACAAATAGCTCAAGGAATATATGATGCGGATC 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 320 ATAAAAATCCATATTATGATACTAGTACATTTTTATCTCATTATTTTATAATCCTGATAGAG 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       380 ATAATACTTATTTGCCGGGTTTTGCTAATGCGAAAATAACAGGAGCAAAGTATTTCAATC 439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           440 AATCGCTGACTGATTACCGAGAAGGGAAATTTGACACAGCGTTTTATAAATTAGGCCTAG 499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       560 CATACCCTCCAGGCTACCACTGTGCATATGAAAATTACGTAGATACCATTAAACACAATT 619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATATTGTTTCAGATAGCAATGGATATTGGAATTGGAAAGGAGGAAACCCAGAAGATTGGA 637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAACAACATATATTCCTTTTGCGAAACATGCAAAAGAAACAGGCGCAAAATATTTAACC 397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTGAAGGAGCAGCGGTAGCAGCTAAACAAGATTATCCTGGCGTTGTGAACGATACGACAA 697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACGAGAATCCTTATTATGATAATAGTACATATGCTTCTCACTTTTATGATCCGGATACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CACCGATTTTAAGATGGTCAGCTGAGGATAAGCATAATGAGGGGGATTAACTCTCATTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cacaraaacriragricgicgggaraacccgacaaaracrgacgraaaracgcacrarr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGCTTTTTAAACAAGCGGAAAAAAAATACTAGCTAAAGATGTAAATCATATGCGAGCTAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            500 caarccarrarrarggararragicaaccrargcacgcaaraarriaccgcaarar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTTATCCAATGGGTTTCCATTCTAAATACGAAAATTTTGTTGATACAATAAAAATAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                         Listeria monocytogenes EGD-e
Listeria monocytogenes EGD-e
Bacteria; Firmicutes; Bacillales; Listeriaceae; Listeria.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                   RECHBRCHE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 870;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 18.2%; Score 154.4; DB 6; Length Best Local Similarity 53.1%; Pred. No. 8.2e-22; Matches 329; Conservative 0; Mismatches 291; Indels
                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                         EGD-e"
                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                               Listeria inocua, genome and applications
Patent: WO 0228891-A 740 11-APR-2002;
INSTITUT PASTEUR (FRP); CENTRE NATIONAL DE
SCIENTIFIQUE (CNRS) (FR)
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                   1. .870
|organism="Listeria monocytogenes
|/mol_type="unassigned DNA"
|db_xref="taxon:169963"
                                                                                                        DNA
                                                                                                        870 bp
WO0228891.
AAGATTGGTTTGTAAAAGCA 717
                                                                                                                 Sequence 740 from Patent AX413749
                                                                                                                                                         AX413749.1 GI:21446206
                                                                                                                                                                                                                                                                Kunst, F. and Glaser, P.
                                                                                                        AX413749
                  798
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    869
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   518
                                                                                                                   DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                              REFERENCE
AUTHORS
                                                                     RESULT 12
AX413749
                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                    PEATURES
```

a ò

용 ઠે g ò 8 & 8

6666

ठ हे ठ

요 ò

```
/transl_table=11
/protein_id="AAA25272.1"
/db_xref="G1:149648"
/translation="MIVTTSPNIEGKQIIEYKKIVFGEVITGVNFMKDIGAGLRNFFG
GRSGGYEDELINAREEAIREMEQRAKDIGANAVIGVDIDYEVLGADNGMLMVTASGTA
YTYKGDKVTKQTAENTMSYASLGVASKEDAEKMLKATSDKPQCIDGLKEKIEYKDDKA
IETLEVDYTKISSEDMNKIPGMSSNGDTSKGISMEESAKMLESQGYKEVSK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /transl_table=11
/protein_id="AAA25273.1"
/db_xref="G1:149649"
/translation="MITFDQLDTELQALENPNTIXIFRNHGCPDSLDLYGLKIGDLKK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IIRREKLTKNHELAVKLIESNNSDLYLGLAINDNKITTEOTESLAINELKREPKERFERFESCH.
FGLASIVSKRDDALLFAKTWIESDYDLTKSMGWQIYSEHINNLPRAFTLLQRAKETLQ
TETINTTRYSMNGFIITGGIYKDDLHEKAMEAAKSVGKVHVNLGNTACKVPDALSYIEK
ARNEYK.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /trānslation="EFPAWSHTTVGGLPITEWISBDEQGAMDTIFVSVRDAAYEIINK
KRATFYGVARALARITKALIANBNALIALSYVLDGHYGWNDIYIGAPAVVNRQGVRHI
VENNINDERERGQMRSADTIKKVLDDAMKQID"
ÇOMplement (5247. . . 5648)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cacaraaacittagritggiccggaraacccgacaaatacrgacgraaatacgcactarit 2381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2382 GGCTTTTTAAACAAGCGGAAAAATACTAGCTAAAGATGTAAATCATATGCGAGCTAATT 2441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CACCGAITTTAAGATGGTCAGCTGAGGATAAGCATAATGAGGGGATTAACTCTCATTTGT 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2682 caarccartarrarggararragicaccarargcacccarararrarracgcaarar 2741
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGATTGTAAATGGTGCAATTGACATCATGTCTCGTAATACAACGATTGTGAATCCGAATG 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2622 AATCGGTGACTGATTACCGAGAGGGAAATTTGACACAGCGTTTTATAAATTAGGCCTAG 2681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              caraccirccadecraccacriorecarardaaaarracoradaracarraaacacaarr 2801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          338 GAACAACAIAIATICCTTTIGCGAAACAIGCAAAAGAAACAGGGGGAAAATATTTAACC 397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            518 CITALCCAALGGGTITCCATICTAAATACGAAAATTITGTIGATACAATAAAAAAATAACT 577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       578 ATATTGTTTCAGATAGGAATATTGGAATTGGAAAGGAGCAAACCCAGAAGATTGGA 637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          278 ACGAGAATCCTTATTATGATAATAGTACATATGCTTCTCACTTTTATGATCCGGATACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2562 ATAATACTTATTGCCGGGTTTTGCTAATGCGAAAATAACAGGAGCAAAGTATTTCAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ..
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 5648;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18.2%; Score 154.4; DB 1;
illarity 53.1%; Pred. No. 6.8e-22;
Conservative 0; Mismatches 291;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon start=1
/transl_table=11
/protein_id="AAA25274.1"
/db_xref="GI:149650"
                                                                                                               complement (4094. .4426)
                                                                                                                                                                                                                                                                                                                                                                                                                                      complement (4493. .5167)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement (5244. ,5648)
/gene="ldh"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           codon start=1
                                                                            .4093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="ldh"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local Similarity
Matches 329; Conserv
                                                                 terminator
CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ሯ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /transl_table=11
/broel=11
/broel=11
/broel=11
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645"."
/db_xxef="d1:149645".
                                                                                                           LISACTLDH
LISACTLDH
Listeria monocytogenes lecithinase, lactate dehydrogenase (acth)
gene complete cds, (plcB) gene complete cds, (ldh) gene complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /transI_table=11
/ppocein_id=4AAA55270.1*
/db.xref="id1:48646"
/db.xref="id1:48646"
/translation="KKFKKVVLGMCLIASVLVPPVTIKANACCDEYLQTPAAPHDIDS
KLPHKLSWSADNPTNTDVNTHWLFKOREKILANDVNHWRATMLANBLKFEDKQIAGGI
YDADHKWPYDTDTFLSHFYNPDRDWTYLPGPRANAKTITGAKYPNGSVTDYREGREDTA
FYKKGLAINTYTDISOPMHANNFTAISYPPGYHCAYENYVDTIKHNYQATEDWVAKRE
CSDDVKDMLYENAKRAKADYPKIVNAKTKKSYLVGNSBWKKDTVEPTGARLRDSQQTL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /protein_id="AA55271.1"
/db_xref="G1:149647"
/translation="MKMLKKGTAVLFVMIMAVMLVACGDKEETKTYTLSQNGVDSKLT
                                                                                                                                                                                                                                              M82881.
M82881.
M82881.
M82881.

M82881.1 GI:149644

lactate dehydorgenase; lecithinase; surface antigen.
Listeria monocytogenes

Listeria monocytogenes

Lacteria, Pirmicutes; Bacillales; Listeriaceae; Listeria.

(bases 1 to 5648)

Vazquaz-Boland, J.A., Kocks, C., Dramsi, S., Ohayon, H., Geoffroy, C., Mangaud, J. and Cossart, P.

Mucleotide sequence of the lecithinase operon of Listeria monocytogenes and possible role of lecithinase in cell-to-cell spread
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source text: Listeria monocytogenes (strain L028) DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1. .5648 // Account of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Infect. Immun. 60 (1), 219-230 (1992)
92104678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SLGAFIKI IQLRKNN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3124. .3540
/note="ORFX/Y"
3582. .4043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1/transI_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="plcB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2183. .3052
/gene="plcB"
2183. .3052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="actA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   note "ORFZ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Original
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       misc_feature
                                                                                                                                                                                                                                              ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                           LOCUS
DEFINITION
                              RESULT 14
LISACTLDH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
MEDLINE
PUBMED
COMMENT
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sgo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
```

셤

ઠ

g

ò

```
/transl_table=11
/dp.xref=10:16409562.1"
/db_xref=10:16409562"
/db_xref="SPTREMBL:092870"
/translation="MQVTDVRLRRVETDGRMRAIASITLDEEFVVHDIRVIDGNNGLF
/translation="MQVTDVRLRRVETDGRMRAIASITLDEEFVVHDIRVIDGNNGLF
VAMPSKRGVDGEFRDIAHPINSDTRAKIQBVVLAEYERVGEBEATAVTEEESBSVSAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation="wskrrydyuldagggtrwksklykvulpvcgkpwvehvvddistl

NVDKVVTIVGHGAEKVQEHLAGKSEFVKQDEQLGTAHAVLQAKAELAGKDGVTLVVCG

PTDLIEBSTREALLKYHHERARATILTTYLEDPTGVERIIDDLGTVEKIVEHKDAT

BKEQRIESINGTYCFDNKALFEALENVSNDNVGGETVLPVVIKILKDSDEVVAAXBN

BSFEBSLGVNDRIALAEASKLAGRRINENNSNDNVGGSTVLPVVIKILKDSDEVVAAXBN

BSFEBSLGVNDRIALAEASKLAGRRINENNSNDVGGSTVLVNPESTYIDIDVKIGQDTVIE

BSDIHDHVKIGDDCVVTSGSEIVNSVIGBRVHVRTSSIFESKVGDDVQIGFYAHLRP

BSDIHDHVKIGNYVETKKAVVGEGTKLPHFIYMGDAEIGKNVNVGCGSIAVNYDGKNK

AKTIIODNVFVGCNSNLIAPVKVGDRAFIAAGSTITKDVPEBALGIARAKQDNKLGYR

KHLNHSK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /good feart=1
/transl table=11
/product="listeriolysin positive regulatory protein"
/product="listeriolysin positive regulatory protein"
/protein_id="CAND0727.1"
/db_xref="GI:16409565"
/db_xref="GOA:P2262"
/db_xref="SWISS-PROT:P2262"
/translation="MNAQABEFKKYLETNGIKPKQFHKKELIFNQWDPQEYCIFLYDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db_xref="SWISS-PROT:Q48793"
/translation="MSNEYFDPKLKIFSLNSNRELAEE1AKEVGIELGKSSVTHFSDG
EIQINIEESIRGCHVYVIQSTSNPVNQNLMELLIMIDALKRASAATINIVMPYYGYAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QDRKARSREPITAKLVANLIETAGATRMITLDMHAPQIQGFFDIPIDHLNAVRLLSDY
FSERHLGDDLVVVSPDHGGYTRARKMADRLKAPIAIIDKRRPRPNVAEVMNIVGNVEG
KVCIIIDDIIDTAGTITLAAKALREAGATKVYACCSHPVLSGPAMKRIESSPIEKLVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'product="phosphoribosy1 pyrophosphate synthetase"
'protein_id="CAD00726.1"
db_xref="G1:16409564"
                                                                                                                                                                                                                                                                                                                                                                                                    'note="highly similar to UDP-N-acetylglucosamine
    note="similar to B. subtilis SpoVG protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TNSIALPEEKWIDKMEQLSVAALLGEAIVRVHENASVSSLFE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement(join(3640. .4353,4361. .4365))
/gene="prfA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    oin(2629. .2634,2641. .3597)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /db_xref="GOA:08YAD4"
/db_xref="SPTREMBL:08YAD4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /protein_id="CAD00725.1"
/db_xref="GI:16409563"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement (3596. .3631)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement (3596. .3631)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement (3640. .4353)
                                                                                                                                                                                                                                                                                                                                                                                                         pyrophosphorylase"
/codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               db_xref="GOA:Q48793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           codon start=1
transl_table=11
                                                                                                                                                                                                                                     gene="lmo0197"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="prs"
2629. .2634
                                                                                                                                                                                                                                                             202. .2590
gene="gcaD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="prfA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene="prfA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3607. .3642
/gene="prs"
                                                                                                                                                                                                                                                                                                                                     gene="gcaD'
                                                                                                                                                                                                                                                                                                                                                                              gene="gcaD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene="prs"
                                                                                                                                                                                                                                                                                                           .1207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene="prs"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene="prs"
                                                                                                                                                                                                               845. .876
                                                                                                                                                                                                               terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         terminator
                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                           RBS
                                                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Glaser, P., Frangeul, L., Buchrieser, C., Rusniok, C., Amend, A., Charbit, P., Charborty, T., Charbit, A., Chetouani, F., Couve, B., de Daruvar, A., Dehoux, P., Domann, E., Dominguez-Bernal, G., Duchaud, B., Durant, L., Dominguez-Bernal, G., Duchaud, B., Durant, L., Gustier, L., Goebel, W., Gomez-Lopez, N., Hain, T., Hauf, J., Jackson, D., Jones, L.M., Kaerst, U., Kreft, J., Kunh, M., Kunst, F., Kurapkat, G., Madueno, E., Mattournam, A., Vicente, J. M., Ng, E., Nodjari, H., Nordsiek, G., Novella, S., de Pablos, B., Perez-Didz, J. Tierrez, A., Vazquez-Boland, J.A., Voss, H., Wehland, J. and Cossart, P. Comparative genomics & Listeria species
                                                                                                                                                                                                                                                                                   160050 bp DNA linear BCT 06-JUN-2002
Listeria monocytogenes strain EGD, complete genome, segment 2/12.
AL591974 AL591824
AL591974.1 GI:16409560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /protein_id="CAD00723.1"
/db_xref="GI:16409561"
/db_xref="STREMBL:08YADS"
/db_xref="STREMBL:08YADS"
/translation="WHEITDVERWEYDGRMKAISSITIDGEFVIHDIRVIDGNEGLP
VAMPSKRTPDGEFRDIAHPINSGTRAKIQEAVLAAYEVADEPAVNEESSADESIVEEN
2921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2 (bases 1 to 160050)
Glaser, P., Frangeul, L. and Rusniok, C.
Direct Submission

Birect Submission

Birect Submission

Birect Submission

Birect Submission

Cedex 15, FRANCE

E-mail: pglaser@pasteur.fr

Phone: 433 1 45 68 89 96, Fax: 433 (0)1 45 68 87 86.
                                                                          697
                                                                        TTGAAGGAGCAGCGGTAGCAGCTAACAAGATTATCCTGGCGTTGTGAACGATACGACAA
                                                                                                                   2862 TCTATGAAAATGCGAAAAGGGCGAAAGCGGACTACCGGAAAATAGTCAATGCGAAAAGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Listeria monocytogenes
Bacteria, Firmicutes, Bacillales, Listeriaceae, Listeria.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 note="similar to B. subtilis SpoVG protein"
codon start=1
'transT table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1. 160050
/organism="Listeria monocytogenes"
/mol_type="genomic DNA"
/strain="EGD-e"
/db_xref="taxon:1639"
                                                                                                                                                                                                          2922 AAAAATCATATTTAGTAGGA 2941
                                                                                                                                                               AAGATTGGTTTGTAAAAGCA 717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene="1mo0196"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'gene="lmo0196"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="lmo0197"
508. .513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              508. .513
/gene="lmo0197"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'gene="lmo0196"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          522. .830
/gene="lmo0197"
                                                                                                                                                                                                                                                                                                                                                                                                                                                Listeria monocytogenes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              508. .876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        80. .85
                            2802
                                                                        638
                                                                                                                                                                 869
                                                                                                                                                                                                                                                                                                                                               DEFINITION
ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                   RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PUBMED
                                                                                                                                                                                                                                                                                                      AL591974
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
```

```
Search completed: August
Job time : 3702 secs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      요
                                                                            g
                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          원장
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                       ઠ
                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              / codon start=1
/transI table=11
/transI table=11
/producf="listeriolysin O precursor"
/producf="listeriolysin O precursor"
/producf="listeriolysin O precursor"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.pl3128"
/db_xref="Goa.p
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db_xrefe="G1:124"G24"
/db_xrefe="G1:124"G24"
/db_xrefe="SWISS-PROT: P34024"
/db_xrefe="WYKNYLOFTLUFILLFFTFPLGGKAYSLNNWKPIKNSVT
/translation="WYKNYLOFTLUFILLFFTFPLGGKAYSLNNWKPIKNSVT
TKOMMSALPDTTNLAALSTPTTVILLFFTFPLGGKAYSLNNWKPIRYT
TKOMMSALPDTTNLAALSTPTTVILLFFTFPLGGKAYSLNNSVT
TKOMMSALPDTTNLAALSTPTTVILLFFTRYPERTOTSNY
TKOMMSALPDTTNLAALSTPTTVINGFTRYNDTKTTLLLSENHTKKPLVINSRKFGMOFG
APMQVIQDDYNGFSYTTFRTDTSNXIPTLINDFFKKJILLLSENHTKKPLVINSRKFGMOFG
APMQVIQDDYNGFSYTTRYTTTTTYNYKRNITKNNKFN"

COMDIEMENT (5586. .5591)
/gene="hly"
S804. .7408
/gene="hly"
S819. .7408
/gene="hly"
/gene="hly"
ITKLTSISENGTIMNLQYYKGAFVIMSGFIDTETSVGYYNLEVISEQATAYVIKINEL
KELİSKNLTHPFYVÇOTLÖKQVSYSLAKFNDFSINGKLGSICGQLLILTYYGKETPD
GIKTILDNITMQELGYSGGIAHSSAVSRIISKLKQEKVIVYKNSCFYVQNLDYLKRYA
PKLDEWFYLACPATWGKLN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              \( \text{reads} \) at ion="mkskilciimtapqahptmtvkadsvgeeklonntqakktpad \) \( \text{reads} \) at ion="mkskildmtkdklgvthytlalssggyltdndeikvhvtpdnkt \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \text{read} \) \( \tex
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TKRLVYNIKLI PABPBVASWI VQVDVETQAILKKQNMLSBVERADTHKDPQALGKGAN
RLLQRPLHYMKINDLFYLVDRTHKGLI RTFDLKHNTDTSFGKVVSNKTNMFTDPBFSS
AVDAHFYASBVYEYYKWHQLBSLDGKGGEIDSFVHYGLNCNNAFWDGQEILYGDGDK
KNFRPFSCAKTI VGHELTHAVI QYSAGLBYBGGGGALARSFADVFGYFI APNHHLIGB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="phosphatidylinositol-specific phospholipase / protein id="CAD00728.1" (db_xref="GI:16409566"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /transl_table=11
product="zinc metalloproteinase precursor"
(protein id="cAn00730.1"
db_xref="G1:16409568"
db_xref="G0A:P23224"
db_xref="SWISS-PROT:P23224"
                                                                                                                                                                                                            complement (4361. .4365)
                                                                                                                                                                                                                                                                                                             complement (4624. .5591)
                                                                                                                                                                                                                                                                                                                                                                                                    complement (4624. .5577)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="mpl"
/gene="mpl"
/gene="mpl"
/gene="mpl"
/gene="mpl"
/gene="mpl"
/codon start=1
/transl_table=1:
                                                                                                                                                                                                                                                               /gene="prfA"
                                                                                                                                                                                                                                                                                                                                                                /gene="plcA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene="plcA"
                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      900
                                                                                                                                                                                                            RBS
                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
```

2, 2004, 03:23:45

ö

0; Gaps

DB 1, Length 160050;

Query Match 18.2%; Score 154.4; DB 1; Length Best Local Similarity 53.1%; Pred. No. 4.9e-22; Matches 329; Conservative 0; Mismatches 291; Indels

```
11803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 11863
                                                                                                                                                         GGCTTTTTAAACAAGCGGAAAAATACTAGCTAAAGATGTAAATCATATGCGAGCTAATT 11683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11864 AATCGGTGACTGATTACCGAGAAAGGGAAATTTGACACAGGGTTTTATAAATTAGGCCTAG 11923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12104 icnangaaangcgaaaaggcgaaaggcgachacccgaaaanachangcgaaaacha 12163
                                                                                                                                                                                                                                                                                                                     337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          517
                                                                                                                                                                                                              277
                                                                                                                                                                                                                                                                                                                                                                                                                            397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     697
157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              637
                                                                                                                                                                                                                                                                                                                     278 ACGAGAATCCTTATTATGATAGTACATATGCTTCTCACTTTTATGATCCGGATACTG
                                                                                                                                                                                                                                                                                                                                                      11924 caarccarrarraracegararragrcaaccrareccaararrarraccecaarar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11984 CATACCCTCCAGGCTACCACTGTGCATATGAAAATTACGTAGATACCATTAAACACATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12044 Arcaagcaacggaagacarggraggaaaaagarrrrgcrcagargacgrgaaagacrggc
                                                                                                       GGATTGTAAATCGTGCAATTGACATCATGTCTCGTAATACAACGATTGTGAATCCGAATG
                                                                                                                                                                                                                11684 TAATGAATGAACTTAAAAATTCGATAAACAAATAGCTCAAGGAATATATGATGCGGATC
                                                                                                                                                                                                                                                                                                                                                                                                                               338 GAACAACATATATTCCTTTTGCGAAACATGCAAAAGAAACAGGCGCAAAATATTTAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11804 ATAATACTTATTTGCCGGGTTTTGCTAATGCGAAAATAACAGGAGCAAAGTATTTCAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      578 ATATTGTTTCAGATAGCAATGGATATTGGAATTGGAAAGGAGCAAACCCCAGAAGGTTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     638 TIGAAGGAGCAGCGGTAGCAACAAGATTATCCTGGCGTTGTGAACGATACGACAA
CACCGATTTTAAGATGGTCAGCTGAGGATAAGCATAATGAGGGGATTAACTCTCATTTGT
                                                  11564 CACATAAACTTAGTTGGTCGGGGATAACCCGACAAATACTGACGTAAATACGCACTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             518 CTTATCCAATGGGTTTCCATTCTAAATACGAAAATTTTGTTGATACAATAAAAATAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12164 AAAAATCATATTTAGTAGGA 12183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              698 AAGATTGGTTTGTAAAAGCA 717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               458
98
                                                                                                       158
                                                                                                                                                           11624
```

```
August 2, 2004, 02:14:50; Search time 483 Seconds (without alignments) 8618.563 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                         1 atgaaaaagaaagtattagc.......atacgtatgtaaatcgctaa 849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Published Applications NA:*

1: /cgn2_6/ptodata/2/pubpna/USO7_PUBCOMB.seq:*
2: /cgn2_6/ptodata/2/pubpna/PCT_NEW_PUB.seq:*
4: /cgn2_6/ptodata/2/pubpna/USO6_NEW_PUB.seq:*
5: /cgn2_6/ptodata/2/pubpna/USO6_PUBCOMB.seq:*
5: /cgn2_6/ptodata/2/pubpna/USO7_NEW_PUB.seq:*
6: /cgn2_6/ptodata/2/pubpna/PCTUS_PUBCOMB.seq:*
7: /cgn2_6/ptodata/2/pubpna/USO8_PUBCOMB.seq:*
8: /cgn2_6/ptodata/2/pubpna/USO8_PUBCOMB.seq:*
9: /cgn2_6/ptodata/2/pubpna/USO8_PUBCOMB.seq:*
11: /cgn2_6/ptodata/2/pubpna/USO8_PUBCOMB.seq:*
11: /cgn2_6/ptodata/2/pubpna/USO9_PUBCOMB.seq:*
11: /cgn2_6/ptodata/2/pubpna/USO9_NEW_PUB.seq:*
12: /cgn2_6/ptodata/2/pubpna/USO9_NEW_PUB.seq:*
13: /cgn2_6/ptodata/2/pubpna/USO9_NEW_PUB.seq:*
14: /cgn2_6/ptodata/2/pubpna/USO8_NEW_PUB.seq:*
15: /cgn2_6/ptodata/2/pubpna/USO8_NEW_PUB.seq:*
16: /cgn2_6/ptodata/2/pubpna/USO8_NEW_PUB.seq:*
17: /cgn2_6/ptodata/2/pubpna/USO8_NEW_PUB.seq:*
18: /cgn2_6/ptodata/2/pubpna/USO8_NEW_PUB.seq:*
19: /cgn2_6/ptodata/2/pubpna/USO8_NEW_PUB.seq:*
19: /cgn2_6/ptodata/2/pubpna/USO8_NEW_PUB.seq:*
19: /cgn2_6/ptodata/2/pubpna/USO8_NEW_PUB.seq:*
19: /cgn2_6/ptodata/2/pubpna/USO8_NEW_PUB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6445838
GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3222919 segs, 2451570024 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                    - nucleic search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IDENTITY_NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                               PCT-US03-12556-1
849
                                                                                                                                                                                                                                                                                                                                                                                    Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Scoring table:
                                                                                                                                    OM nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Database :
                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence:
                                                                                                                                                                                                          Run on:
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

		· .	æ			Ω	. a	-	_	_	_	a		α.	_
		equence 1, Appli	0434,	Sequence 3, Appli	Appl	740, App	2646, Ap	l, App	Sequence 97, Appl	9, App	1, App	Sequence 3772, Ap	O, App	70, Ap	Sequence 21, Appl
	ио	i e	3e 4	Se Se	Se S	, e	, 5	Se 3	9	9	, 90	3	47	ë.	,e 2
	Description	equenc	equenc	equenc	agnend	Sequence	Sequence	equenc	equenc	agnenc	equenc	equenc	vence	equenc	equenc
	Des	Š	Ö	Š	Ñ	Š	Ö	Ñ	Š	Ö	Š	ũ	Sec	Š	ŭ
			4									•			
		7	-4043	۳-	٦.	-740	-2646	-31	-97	-89	-81	-3772	-470	-470	-21
ES		1-654	9-493	1-654	1-654	3-221	3-221	1-654	1-654	1-654	1-654	3-221	-986A	9-624	5-521
SUMMARIES		0-42	0-36	0-42	0-42	0-39	0-39	0-42	0-42	0-42	0-42	0-39	JS-08-781-986A-470	US-10-329-624-470	96-6
	£	US-10-421-654-1	US-1	US-1	US-1	US-1	US-1	US-1	US-1	US-1	US-1	US-1	US-08	US-1	ns-c
	DB	16	16	16	16	16	16					16		13	ព
	Query Match Length DB ID	849	1192	852	843	870	870	1422	1422	1422	1422	4562	9821	9821	837
	tch	0.0	5.9	62.3	9.6	8.2	8.2	0.3	0.1	9.0	8.5	8.9	5.1	5.1	5.1
d p	gg :														
	Score	849	559.2	529	505.8	154.4	154.4	87.4	85.8	76.8	72	57.4	43.4	43.4	43.2
	Result No.	-	7	ო	4	ß	9	7	6 0	0	10	11	12	13	14
	Re											υ			υ

Sequence 21, Appl Sequence 130, App Sequence 130, App Sequence 132, App Sequence 1941, Ap Sequence 1559, Ap Sequence 69, Appl Sequence 7, Appl	Sequence 199, App Sequence 27, Appl Sequence 37486, A Sequence 8, Appli Sequence 2058, Ap Sequence 2, Appli	100, 100, 310, 310, 131, 131,	Sequence 1247, Ap Sequence 1247, Ap Sequence 82, Appl Sequence 453, App Sequence 52786, A Sequence 597, App Sequence 1, Appli Sequence 7, Appli
15 US-10-429-094-21 8 US-08-781-986A-130 13 US-10-329-624-130 15 US-10-240-453-132 16 US-10-260-238-1941 15 US-10-311-455-1559 17 US-10-240-589C-69 14 US-10-067-385-7	13 10 13 16 16	15 13 13 13 9 U 9 U 15 13	13 US-10-221-613-241 15 US-10-311-455-1247 16 US-10-341-434-82 17 US-10-322-281-453 15 US-10-313-455-597 15 US-09-790-988-1 17 US-10-441-926-7
837 5924 5924 8170 2000 6227 6319	2911 6360 6423 495269 3011208	4985 4985 541 1014 3381 3477 1353 2130 3673778	5338 13038 60461 150351 16217 640681 2583
00004444 111110000	4 4 4 4 4 4 0 0 0 0 0 0 0	44444444 0000	4444444 000000000
443.2 43.2 43.2 41.8 41.8 61.6	41.6 41.6 41.6 41.6 71.6	44 EEEE	######################################
C 15 C 16 C 17 C 18 C 18 C 20 C 21	23 25 26 27 28	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

ALIGNMENTS

GTAGTATTTGCACAAACAAATAATAGTGAAAGTCCTGCACCGATTTTAAGATGGTCAGCT 120 1 ATGAAAAGAAAGTATTAGCACTAAGCAGCTATGGTTGCTTTAGCTGCGCCAGTTCAAAGT Sequence 1, Application US/10421654
; Publication No. US20040005604A1
; GENERAL INFORMATION:
 APPLICANT: Gramatikova, Svetlana
; APPLICANT: Hazlewcod, Geoff
; APPLICANT: Lam, David E.
; APPLICANT: Barton, Nelson R.
; TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
; TITLE OF INVENTION: METHODS FOR MAKING AND USING THEM
; TITLE OF INVENTION METHODS FOR MAKING AND USING THEM
; FILE REFERENCE: 09010-094001
; CURRENT APPLICATION NUMBER: US/10/421,654
; CURRENT FILING DATE: 2003-04-21
; PRIOR FILING DATE: 2002-04-19 1 ATGAAAAAGAAAGTATTAGCACTAGCAGCTATGGTTGCTTTAGCTGCGCCAGTTCAAAGT Gaps .. 0 100.0%; Score 849; DB 16; Length 849; 100.0%; Pred. No. 5.6e-196; Live 0; Mismatches 0; Indels 0. FEATURE: CTHER INFORMATION: Obtained from an environmental sample US-10-421-654-1 NUMBER OF SEQ ID NOS: 106 SOFTWARE: FastSEQ for Windows Version 4.0 Query Match Best Local Similarity 100.0 Matches 849; Conservative TYPE: DNA ORGANISM: Unknown LENGTH: 849 RESULT 1 US-10-421-654-1 61 SEQ ID NO 1 ඊ. සි δ g

ö

9 9

61

```
RESULT 3
US-10-421-654-3
; Sequence 3, Application US/10421654
; LENGTH: 1192
; TYPE: DNA
; ORGANISM: Bacillus thuringiensis
US-10-369-493-40434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTAAATCGCTAA 849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGAAATCGTTAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       718
                                                                                                                                                                                                                                                                                                                                                                                                238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            658
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  838
                                                                                                                                                                                                                                                                                                                                                                                                                            241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          661
                                                                                                                                                                                                                                                                     118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           중 원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                               셤
                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                    ठ
                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                           ŝ
                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-369-493-40434

US-10-369-493-40434, Application US/10369493

Sequence 40434, Application US/10369493

Publication No. US20030233675A1

GENERAL INFORMATION:
APPLICANT: Cao, Yongwei
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: Glamen, Barry S.
APPLICANT: G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               840
                                                                                                                                                                                                                                                                                                                                                                                                540
                                                                                                                                                                                                                                                                                                                                                                                                                             540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 840
                                                                                                                                                                                                      AGTACATATGCTTCTCACTTTTATGATCCGGATACTGGAACAACATATATTCCTTTTGCG 360
                                                                                                                                                                                                                                                                     420
                                                                                                                                                                                                                                                                                                    420
                                                                                                                                                                                                                                                                                                                                   480
                                                                                                                                                                                                                                                                                                                                                               480
                                                                                                                                                                                                                                                                                                                                                                                                                                                            600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  780
                                                                                                                                           300
                                                                                                                                                                         300
                                                                                                                                                                                                                                                                                                                                                                                              GAGGATAAGCATAATGAGGGGATTAACTCTCATTTGTGGATTGTAAATCGTGCAATTGAC
                                                                             ATCATGTCTCGTAATACAACGATTGTGAGAATCCGAATGAAACTGCATTATTAAATGAGTGG
                                                                                             CGTGCTGATTTAGAAAATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGATAAT
                                                                                                                                                                                                                                                                                       CAAGATATGCAGCAAGCATTCTTCTACTAAGATTATCGCTTCATTATTTAGGAGATGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAACAAGATTATCCTGGCGTTGTGAACGATACGACAAAAGATTGGTTTGTAAAAGCAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTATCTCAAGAATATGCAGATAAATGGCGTGCGGAAGTAACACCGGTGACAGGAAAGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTAATGGAAGCGCACGCGTTACAGCTGGTTATATTATTGTGATTTGATACGTATGTA
                   GAGGATAAGCATAATGAGGGGATTAACTCTCATTTGTGGATTGTAAATCGTGCAATTGAC
                                                                                                                                                           CGTGCTGATTTAGAAATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGATAAT
                                                                                                                                                                                                                                                                     AAACATGCAAAAGAAACAGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAAAAT
                                                                                                                                                                                                                                                                                                                                   CAAGATATGCAGCAAGCATTCTTCTACTTAGGATTATCGCTTCATTATTTAGGAGATGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAATACGAAAATTTTGTTGATACAATAAAAAATAACTATATTGTTTCAGATAGCAATGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TATTGGAATTGGAAAGGAGCAAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TATTGGAATTGGAAAGGAGCAAACCCAGAAGATGGATTGAAGGAGGAGCAGCGGTAGCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTATCTCAAGAATATGCAGATAAATGGCGTGCGGAAGTAACACCGGTGACAGGAAAGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTAATGGAAGCGCAGCGCGTTACAGCTGGTTATATTCATTTGTGGTTTGATACGTATGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AATCGCTAA 849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181
                                                                                                                                                                                                                                     301
                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                    361
                                                                                                                                                                                                                                                                                                                                                                 421
                                                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 841
                                                                                                                                                                                                                                                                                                                                                                                                 481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   781
                                                                              181
                                                                                                                                           241
                                                                                                                                                                          241
                                                                                                                                                                                                         301
                  121
                                               121
                                                                                                                                                                                                                                                                                                                                   421
                                                                                                                                                                                                                                                           8686
                                                                                                                                                                                                                                                                                                                                                                                       8 6 8 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      के क्षे के
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                       g
                                                                           8 8 8
                                                                                                                                                                  8 8 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠે
```

```
240
                                                                                                                                                                                                                                                                                                                                                                                                                                                   360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  61 Gridcárttigercárgaáaárgárgágagagágarrtiggágrrafreggegergérer 120
                                                                                                                                                                                                      177
                                                                                                                                                                                                                                         180
                                                                                                                                                                                                                                                                       178 GACATCATGTCTCGTAATACAACGATTGTGAATCCGAATGAAACTGCATTATTAAATGAG 237
                                                                                                                                                                                                                                                                                                                                             297
                                                                                                                                                                                                                                                                                                                                                                             300
                                                                                                                                                                                                                                                                                                                                                                                                               357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     780
                                                                                                                                    GTAGTATTTGCACAAACAAATAATAGTG---AAAGTCCTGCACCGATTTTAAGATGGTCA 117
                                                                  9
                                                                                                  9
                                                                                                                                                                                                                                                                                                361 GCAAAGCAGGCAAAGGAAACTGGAGCTAAATATTTTAAATTAGCTGGTGAGTCTTACAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AATCAAGATATGCAGCAATCTTCTTCTTAGGATTATCGCTTCATTATTTAGGAGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGATATTGGAATTGGAAAGGAGCAAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGATATTGGAAACTGGAAAAGGTACAAATCCAGAAGATTGGATTCATGGAGCGGCAGTAGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCCGTATCTCAAGAATATGCAGATAAATGGCGTGCGGAAGTAACACCGGTGACAGGAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTGAGGATAAGCATAATGAGGGGATTAACTCTCATTTGTGGATTGTAAATCGTGCAATT
                                                                                                                                                                                                                                                                                                                                                                  TGGCGTACTGAGTTAGAGAACGGTATTTATGCTGCTGCTGACTATGAAAATCCTTATTATGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GIGAATCAGCCAATGCAGCAAACTITACGAATCTTTCTTATCCAATGGGTTTCCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCTAAATACGAAAATTTTGTTGATACAATAAAAATAACTATATTGTTTCAGATAGCAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 ATGABABAGABAGTACTTGCTTTAGCGGCAGCTATTACATTAGTTGCTCCATTACAAGT
                                                                                                                                                                                                                                         121 GCTGAAGATAAACATAAAGAAGGCGTGAATTCTCATTTATGGATTGTAAACCGTGCAATT
                                                                                                                                                                                                                                                                                                                                             TGGCGTGCTGATTTAGAAATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCGAAACATGCAAAAGAAACAGGGGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCTAAACAAGATTATCCTGGCGTTGTGAACGATACGACAAAAGATTGGTTTGTAAAAGCA
                                                                    1 ATGAAAAAAAAATTTAGCACTAGCAGTAGGTTGCTTTAGCTGCGCCAGTTCAAAGT
                                Gaps
                                  .
.
DB 16; Length 1192;
                                Indels
Score 559.2; DB 16;
Pred. No. 1.7e-125;
0; Mismatches 173;
Query Match 65.9%;
Best Local Similarity 79.3%;
Matches 676; Conservative
```

840

```
AAAGCTGATTTTCCATCAATTGTTAATGATAAGACGAAAAATTGGTTCCTAAAAGCAGCT 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTAGTATTTGCACAAACAAATAATAGTGAAAGTCCTGCACCGATTTTAAGATGGTCAGCT 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGGATAAGCATAATGAGGGGATTAACTCTCATTTGTGGATTGTAAATCGTGCAATTGAC 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAATCTGTACATAATGAAGGAGTAAGTTCTCATTTATGGATTGTAAACAGAGCAATTGAT 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGTACGAATTTGGAGGAAGGTATTTATTCTGCAGATTATAAAAACCCATACTATGATAAT 291
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCCACATTCGCTTCACATTCTATGATCCTGATTCAGAAAAAAGGTATATTCCATTTGCT 351
                                                               TTAATGGAAGCGCAGCGCGTTACAGCTGGTTATATTCATTTGTGGTTTGATACGTATGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Greecerriceceargaarcrearesecrariec-----rrraasaresece
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATCATGTCTCGTAATACAACGATTGTGAATCCGAATGAAACTGCATTATTAAATGAGTGG
                                                                                                                                                                                                                                                                                                                          Sequence 5, Application US/10421654

Publication No. US20040005604A1

GENERAL INFORMATION:

APPLICANT: Gramatikova, Svetlana
APPLICANT: Hazlewood, Geoff
APPLICANT: Hazlewood, Geoff
APPLICANT: Barton, Nelson R.

TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND TITLE OF INVENTION: METHODS FOR MAKING AND USING THEM
FILE REFERENCE: 09010-094001
CURRENT APPLICATION NUMBER: US/10/421,654
CURRENT FILING DATE: 2003-04-19

PRIOR FILING DATE: 2002-04-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGTACATATGCTTCTCACTTTTATGATCCGGATACTGGAACAACATATATTCCTTTTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATGAAAAGAAAATTTTAGCTATAGCTTCTGTAATTGCTTTAACAGCTCCTATTCAAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGTGCTGATTTAGAAAATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGATAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAACATGCAAAAGAAACAGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 ATGAAAAGGAAAGTATTAGCACTAGCAGCTATGGTTGCTTTAGCTGCGCCAGTTCAAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURE:
OTHER INFORMATION: Obtained from an environmental sample
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             59.6%; Score 505.8; DB 16; 75.7%; Pred. No. 1.4e-112; iive 0; Mismatches 197;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQ ID NOS: 106
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches 643; Conservative
                                                                                                                                                                                                 AATCGCTAA 849
                                                                                                                                                                                                                                      AATAACAAA 849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: DNA
ORGANISM: Unknown
                                                                                                                                                                                                                                                                                                                 US-10-421-654-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-421-654-5
      661
                                                                             721
                                                                                                                  781
                                                                                                                                                           781
                                                                                                                                                                                                 841
                                                                                                                                                                                                                                      841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 292
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              352
                                        721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
  셤
                                δ
                                                                     g
                                                                                                            ઠ
                                                                                                                                                    셤
                                                                                                                                                                                               δ
                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAACAAGATTATCCTGGCGTTGTGAACGATACGACAAAAGATTGGTTTGTAAAAGCAGCC 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAATCTATACATAATGAAGGAGTAAGTTCTCATTTATGGATTGTAAACAGGCCATTGAT 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTACGGATCTAGAGAAAGGCATTTACTCTGCGGATTATGAAAACCCATACTATGATAT 300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 421 AAAGATCTGAAAACGCATTCTTTTTTAGGATTATCACTTCACTATTTAGGGGATGTC 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTAGTATTTGCACAAACAAATAATAGTGAAAGTCCTGCACCGATTTTAAGATGGTCAGCT 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Grescerrrececargaaaresrcaccaagarecaccaarrecreraaagresrcasea 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGGATAAGCATAATGAGGGGATTAACTCTCATTTGTGGATTGTAAATCGTGCAATTGAC 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    301 rccacarrcacarrcaacarrargarccrgarrcaggaaaaacgrararrcaarrager 360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAATACGAAAATTTTGTTGATACAATAAAAATAACTATATTGTTTCAGATAGCAATGGA 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
                            APPLICANT: Gramatikova, Svetlana
APPLICANT: Gramatikova, Geoff
APPLICANT: Hazlewood, Geoff
APPLICANT: Lam, David E.
APPLICANT: Lam, David E.
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM TITLE OF INVENTION: PHOSPHOLIPASES, SOU3-04-01
CURRENT APPLICATION NUMBER: US/10/421,654
CURRENT APPLICATION NUMBER: US/60/374,313
PRIOR APPLICATION NUMBER: US/60/374,313
PRIOR PILING DATE: 2002-04-19
NUMBER OF SEQ ID NOS: 106
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 3
LENGTH: 852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TATTGGAATTGGCAAAGTGCAAATCCAGAAGAGTGGGTTCATGCATCAGCATCAGCAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 ATGAAAAAAAATTTTAGCTATAGCTTCCGTAATTGCTTTAACAGCTCCTATCCAAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGTACATATGCTTCTCACTTTTATGATCCGGATACTGGAACAACATATATTCCTTTTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAACAAGCAAAGCAAACAGGAGCGAAATATTTTAAATTAGCTGGTGAAGCTTATCAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TATTGGAATTGGAAAGGAGCAAAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 ATGAAAAAGAAAGTATTAGCACTAGCAGCTATGGTTGCTTTAGCTGCGCCCAGTTCAAAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGTGCTGATTTAGAAAATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGATAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAACATGCAAAAGAACAGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAAGATATGCAGCAAGCATTCTTCTACTTAGGATTATCGCTTCATTATTTAGGAGATGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                           OTHER INFORMAȚION: Obtained from an environmental sample
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 529; DB 16; I
Pred. No. 3.2e-118;
0; Mismatches 200;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 62.3%;
Best Local Similarity 76.4%;
Matches 649; Conservative (
Publication No. US20040005604A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                  TYPE: DNA
ORGANISM: Unknown
                                                                                                                                                                                                                                                                                                                                                                                                 ; OTHER INFORM
US-10-421-654-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     601
                                                                                                                                                                                                                                                                                                                                                                         FEATURE:
```

ઠે 셤 ò a δ g Š 셤 ò g ℰ 240

111

9

요

8 8

요

ò

g

ઠે

ò

a

ò

360

300

411

420

8

ઠે

8 8 8

요

음 중

යු ò 셤 Š 셤 ઠે

```
320 ATADAAATCCATATTATGATACTAGTACATTTTTATCATTTTTTATCATTTTTATAATCCTGATAGAG 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      cacaraaacirragiridericegegaraaccegacaaaracreaacgiaaaracegekerarr 199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCTTTTTAAACAAGGGGAAAAATACTAGCTAAAGATGTAAATCATATGCGAGCTAATT 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            260 naangaangrachnaaaaanngahaaacaaanagcncaagaanahahangangcaanc 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACGAGAATCCTTATTATGATAATAGTACATATGCTTCTCACTTTTATGATCCGGATACTG 337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       620 Arcaagcaacogaagacarggragcaaaaagarrrrgcrcagargacgrgaaagacrggc 679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TTGAAGGAGCAGCGGTAGCAGCTAAACAAGATTATCCTGGCGTTGTGAACGATACGACAA 697
                                                                                                    380 ATAATACTTATTTGCCGGGTTTTTGCTAATGCGAAAATAACAGGAGCAAAGTATTTCAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGATTGTAAATCGTGCAATTGACATCATGTCTCGTAATACAACGATTGTGAATCCGGAATG
                                                                     GAACAACATATATTCCTTTTGCGAAACATGCAAAAGAAACAGGCGCAAAATATTTAACC
                                                                                                                                                              440 AATCGGTGACTGATTACCGAGAAGGGAAATTTGACACAGCGTTTTATAAATTAGGCCTAG
                                                                                                                                                                                                                                                                                                                                                                                              560 caraccerceaegeraceaererererareaaaarraceraearaeearraaacaearr
                                                                                                                                                                                                                                                       CAATCCATTATTATGCGATATTAGTCAACCTATGCACGCCAATAATTTTACCGCAATAT
                                                                                                                                                                                                                                                                                                                                                   CTTATCCAATGGGTTTCCATTCTAAATACGAAAATTTTTGTTGATACAATAAAAATAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                            578 ATATTGTTTCAGATAGCAATGGATATTGGAATTGGAAAGGAGCAAACCCCAGAAGATTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CACCGATITITAAGAIGGICAGCIGAGGAIAAGCAIAAIGAGGGGATIAACICICATIIGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: KUNST, Frederik
APPLICANT: GLASER, Philippe
TITLE OF INVENTION: Listerita innocua, genome and applications
FILE REFERENCE: 344 702 - US
CURRENT APPLICATION NUMBER: US/10/398,221
CURRENT FILING DATE: 2003-03-27
PRIOR APPLICATION NUMBER: PCT/FR 01/03 061
PRIOR FILING DATE: 2001-10-04
PRIOR FILING DATE: 2000-110-04
PRIOR FILING DATE: 2000-10-04
SPRIOR FILING DATE: 2000-10-04
SOFTWARE: Patentin Version 3.0
SOFTWARE: Patentin Version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
18.2%; Score 154.4; DB 16; Length 870;
Best Local Similarity 53.1%; Pred. No. 3.3e-27;
Matches 329; Conservative 0; Mismatches 291; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; TYPE: DNA
; ORGANISM: Listeria monocytogenes EGDe
US-10-398-221-2646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 2646, Application US/10398221; Publication No. US20040018514A1; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAGATTGGTTTGTAAAAGCA 717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           740 AAAATCATATTTAGTAGGA 759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       278
                                                                                                                                                                                                                                                          458
                                                                                                                                                                                                                                                                                                       200
                                                                                                                                                                                                                                                                                                                                                     518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                           유
                                                                                                                                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                         윤
                                                                                                                                                  ò
                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Š
                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                             720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98 CACCGATTTTAAGATGGTCAGCTGAGGATAAGCATAATGAGGGGATTAACTCTCATTTGT 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               260 TAATGAATGAACTTAAAAATTCGATAAACAAATAGCTCAAGGAATATATGATGCGGATC 319
                                                                                                                                                                                                                                                                                  99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       158 GGATTGTAAATCGTGCAATTGACATCATGTCTCGTAATACAACGATTGTGAATCCGAATG 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         200 GGCTTTTTAAACAAGCGGAAAAAATACTAGCTAAAGATGTAAATCATATGCGAGCTAATT 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               278 ACGAGAATCCTTATTATGATAATAGTACATATGCTTCTCACTTTTATGATCCGGATACTG 337
                                                                                                                                                                                         AAATACGAAAATTTTGTTGATACAATAAAAATAACTATATTGTTTCAGATAGCAATGGA 600
                                                                                                                                                                                                                          AAATATGAAAACTTCGTTGATACAGTGAAAGACAATTATAGAGTAAACAGATGGAGATGGC 591
                                                                                                                                                                                                                                                                                                                               651
                                                                                                                                                                                                                                                                                                                                                                                                                        711
       CAAGATATGCAGCAAGCATTCTTCTACTTAGGATTATCGCTTCATTATTTAGGAGATGTG 480
                                 412 AAAGATCTGAAAAATGCATTCTTTTTTAGGATTATCACTTCATTATTTAGGGATGC
                                                                                                                          AATCAACCAATGCATGCAGCAAACTTTACTAACATTTCGCATCCATTTGGCTTCCACTCA
                                                                                                                                                                                                                                                                                                                                                                           AATCAGCCAATGCATGCAGCAACTTTACGAATCTTTCTTATCCAATGGGTTTCCATTCT
                                                                                                                                                                                                                                                                                  TATTGGAATTGGAAAGGAGCAAAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCAGCT
                                                                                                                                                                                                                                                                                                                             TATTIGGAATTIGGAAAAGTGCAAAATCCAGAAGAGTGGGGTTCATGCATCAGCATCAGCAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                        <u> Aaagcrdarircccarcaarigiraargaraaracdaaaagrirgrirccraaaagcagcg</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTATCTCAAGAATATGCAGATAAATGGCGGGAAGTAACACCGGTGACAGGAAAGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTATCACAAGACTCTGCTGACAAATGGCGTGCTGAAGTAACACCGGTAACAGGAAAACGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTAATGGAAGCGCAGCGCGTTACAGCTGGTTATATTCATTTGTGGTTTGATACGTATGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-398-221-740

Sequence 740, Application US/10398221

Publication No. US20040018514A1

Publication No. US20040018514A1

APPLICANT: KUNST, Frederik

APPLICANT: GLASR, Philippe

TTILE OF INVENTION: Listeria innocua, genome and applications

TTILE OF INVENTION: Listeria innocua, genome and applications

FILE REFERENCE: 344 702 - US

CURRENT FILING DATE: 2003-03-27

PRIOR APPLICATION NUMBER: PCT/FR 01/03 061

PRIOR FILING DATE: 2001-10-04

PRIOR FILING DATE: 2001-10-04

PRIOR FILING DATE: 2000-10-04

NUMBER OF SEQ ID NOS: 4025

SEQ ID NO 740

LENGTH: 970
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
18.2%; Score 154.4; DB 16; Length 870;
Best Local Similarity 53.1%; Pred. No. 3.3e-27;
Matches 329; Conservative 0; Mismatches 291; Indels 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 TYPE: DNA
1 ORGANISM: Listeria monocytogenes-EGD
US-10-398-221-740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AATAACAAA 840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AATCGCTAA 849
                                                                                                                                             472
                                                                                                                                                                                           541
                                                                                                                                                                                                                                      532
                                                                                                                                                                                                                                                                                                                               592
                                                                                                                                                                                                                                                                                                                                                                               199
                                                                                                                                                                                                                                                                                                                                                                                                                             652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        832
                                                                                                491
                                                                                                                                                                                                                                                                                    601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    781
```

ö

셤

ð 유 ò g

ò

ઠે

ઠે

ઠે 셤 음 상 g ò 셤 g

ઠે

g ઠે

ò

```
489
--TICITAICCAAIGGGITICCAITCIAAAIAC 546
                                                                                                                           999
                                                                                                                                                                                                      GATTATCCTGGCGTTGTGAACGATACGACAAAAGATTGGTTTGTAAAAGCAGCCGTATCT 726
                                                                                                                                                                                                                                                                                                       739 GCAAAAGCAGAAATTATGAATATTACTAGTGATAA-----TATTAAATCTCAATATAAT 792
                                                                                                                                                                                                                                                                                                                                                    727 CAAGAATATGCAGATAAATGGCGTGCGGAAGTAACACCGGTGACAGGAAAGCGTTTAATG 786
                                                                                                                                                                                                                                                                                                                                                                                             793 AAAGGAAACAAAGATCTTTGGCAACAAGAAGTTATGCCAGCTGTCCAGAGGAGTTTAGAG 852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       313 TCTCACTTTTATGATCCGGATACTGGAACAACATATATTCCTTTTGCGAAACATGCAAAA 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              373 GAAAC---AGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAAAATCAAGATATG 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         445 CTTTCTCAAGGAGATAAATATTTTAAATTAGCAGGTGAATACTTTAAGAAGAATGATTGG 504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATGCATGCAGCAAACTTTACGAATCT - - TTCTTATCCAATGGGTTTCCATTCTAAATAC 546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAAAATTTGTTGATACAATAAAAAAATAACTATATTGTTTCAGATAGCAATGGATATTGG 606
                                                                                                                                                                         AATTGGAAAGGAGCAAAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCAACAA
                                           ATGCATGCTGCTAATTTTACAGCTGTCGACATGAGTGCAATAAAGTTTCATAGCGCTTTTT
                                                                                    GAAAATTTTGTTGATACAATAAAAATAACTATATTGTTTCAGATAGCAATGGATATTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     430 CAGCAAGCATTCTTCTACTTAGGATTATCGCTTCATTATTTAGGAGATGTGAATCAGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            505 AAACAGGCTTTCTATTTTAGGTGTTGCGACGCACTACTTTACAGATGCTACTCAGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           853 AAAGCGCAAAGAAACACGCCGGGATTTATTCATTTATGCTTTAAAACATATGT 905
                                                                                                                                                                                                                                                                                                                                                                                                                                         GAAGCGCAGCGCGTTACAGCTGGTTATATTCATTTGTGGTTTGATACGTATGT 839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Hazlewood, Geoff
APPLICANT: Hazlewood, Geoff
APPLICANT: Lam, David E.
APPLICANT: Barton, Nelson E.
APPLICANT: Barton, Nelson E.
TITLE OF INVENTION: METHODS FOR MAKING AND USING THEM
TITLE OF INVENTION: METHODS FOR MAKING AND USING THEM
FILE REFERENCE: 09010-094001
CURRENT APPLICATION NUMBER: US/10/421,654
PRIOR APPLICATION NUMBER: US 60/374,313
PRIOR FILING DATE: 2002-04-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 1422;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indela
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; OTHER INFORMATION: Obtained from an environmental sample US-10-421-654-97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 85.8; DB 16;
Pred. No. 2e-10;
0; Mismatches 232;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQ ID NOS: 106
SOFTWARE: FastSEQ for Windows Version 4.0
    ATGCATGCAGCAAACTTTACGAATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 97, Application US/10421654
Publication No. US20040005604A1
GENERAL INFORMATION:
APPLICANT: Gramatikova, Svetlana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match

10.1%; Scc
Best Local Similarity 53.1%; Pre
Matches 283; Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM: Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH: 1422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQ ID NO 97
  490
                                           565
                                                                                                                                                                         607
                                                                                                                                                                                                                    685
                                                                                                                                                                                                                                                             667
                                                                                                                                                                                                                                                                                                                                                                                                                                         787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                547
                                                                                  547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE:
                                  셤
                                                                                  ò
                                                                                                             g
                                                                                                                                                                    ર્જ
                                                                                                                                                                                                           유
                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                  ઠે
                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       qq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠ
                                                                                                                                                                                                                    517
                                                                                                                                                                                                                                                                                                                                                                                                637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            313 TCTCACTTTTATGATCCGGATACTGGAACAACATATATTCCTTTTGCGAAACATGCAAAA 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       320 ATAAAAATCCATATTATGATACTAGTACATTTTTATCTCATTTTTATAATCCTGATAGAG 379
                                                                                                                           440 AATCGGTGACTGATTACCGAGAAGGGAAATTTGACACAGCGTTTTATAAATTAGGCCTAG 499
                                                                                                                                                                                                                                                                                                                                                  CATACCCTCCAGGCTACCACTGTGCATATGAAATTACGTAGATACCATTAAACACAATT 619
                                                                                                                                                                                                                                                                                                                                                                                                                                         ATCAAGCAACGGAAGACATGGTAGCAAAAAATTTTGCTCAGATGACGTGAAAGACTGGC 679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCTATGAAAATGCGAAAAGGGGGAAAGCGGACTACCCGAAAATAGTCAATGCGAAAACTA 739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                373 GAAAC---AGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAAAATCAAGATATG 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATATTGTTTCAGATAGCAATGGATATTGGAATTGGAAAGGAGCAAAACCCAGAAGATTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 31. Application US/10421654

Publication No. US20040005604A1

GENERAL INFORMATION:
APPLICANT: Gramatikova, Svetlana
APPLICANT: Hazlewood, Geoff
APPLICANT: Lam, David E.
APPLICANT: Barton, Nelson R.
TITLE OF INVENTION: PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM AND
TITLE OF INVENTION: METHODS POR MAKING AND USING THEM
FILE REFERENCE: 09010-094001
CURRENT APPLICATION NUMBER: US/10/421,654
CURRENT PILING DATE: 2003-04-21
PRIOR APPLICATION WUMBER: US 60/374,313
PRIOR FILING DATE: 2002-04-19
                                         338 GAACAACATATATTCCTTTTGCGAAACATGCAAAAGAAACAGGCGCAAAATATTTTAACC
                                                                                                                                                                                                                                                         CAATCCATTATTATAGGATATTAGTCAACCTATGCACGCCAATATTTTACCGCAATAT
                                                                                                                                                                                                                                                                                                         CTTATCCAATGGGTTTCCATTCTAAATACGAAAATTTTGTTGATACAATAAAAATAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTGAAGGAGCAGCGTAGCAGCTAAACAAGATTATCCTGGCGTTGTGAACGATACGACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 1422;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ) OTHER INFORMATION: Obtained from an environmental sample US-10-421-654-31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 10.3%; Score 87.4; DB 16; Best Local Similarity 53.3%; Pred. No. 8.2e-11; Matches 284; Conservative 0; Mismatches 231;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQ ID NOS: 106
SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAAAATCATATTTAGTAGGA 759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAGATTGGTTTGTAAAAGCA 717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TYPE: DNA
ORGANISM: Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH: 1422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-421-654-31
                                                                                                                                                                                                                  458
                                                                                                                                                                                                                                                             200
                                                                                                                                                                                                                                                                                                         518
                                                                                                                                                                                                                                                                                                                                                    260
                                                                                                                                                                                                                                                                                                                                                                                                                                         620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       430
```

g ઠે g δ g

8

```
664 CAAGATTATCCTGGCGTTGTGAACGATACGACAAAAGATTGGTTTGTAAAAGCAGCCGTA 723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM: Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                  셤
                                                   g
                                                                                                      8
                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCTCACTTTTATGATCCGGATACTGGAACAACATATATTCCTTTTGCGAAACATGCAAAA 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     373 GAAAC---AGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAAAATCAAGATATG 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAGCAAGCATTCTTCTACTTAGGATTATCGCTTCATTATTTAGGAGATGTGAATCAGCCA 489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATGCATGCAGCAAACTTTACGAATCT---TTCTTATCCAATGGGTTTCCATTCTAATAC 546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAAAATTTTGTTGATACAATAAAAAAAAAATAACTATATTGTTTCAGATAGCAATGGATATTGG 606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gaaaattaigigacgacaattcagacacagratgaagiatctgatggaggggggggatatat 684
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           385 İCİCATİTİTİRGAİTCECGAİACGAĞAAGAACİATAAAGGGGAAĞAAGAAÇÇAACAĞGCT 444
                                                                                                                     685 AATT-----TAGTAAATTCTAATGATCCGAAACAGTGGATCCATGAAACAGGGAGACTC 738
                                                                    AATTGGAAAGGAGCAAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCAGCAGCTAAACAA 666
                                                                                                                                                                           GATTATCCTGGCGTTGTGAACGATACGACAAAAGATTGGTTTGTAAAAGCAGCCGTATCT 726
                                                                                                                                                                                                                              dcaaaagrogaaarcdodaacarracca----argargrogarraaarccacraraar 792
                                                                                                                                                                                                                                                                                    CAAGAATATGCAGATAAATGGCGTGCGGAAGTAACACCGGTGACAGGAAAGCGTTTAATG 786
                                                                                                                                                                                                                                                                                                                                     793 AAAGGAACAATGCTCTTTGGCAGCAAGAAGTTATGCCAGCTGTTCAGAGAAGTTTAGAA 852
              445 CTCTCTCAAGGAGATAAATATTTAAATTAGCAGGCGATTACTTTAAGAAGAGGATTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ses Ardcardcracrarraracaccercacacacadagiecrrraaagirrcaracgerrrr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sos aaacaagerritetarrarritagerefreedacgeacracracracadargeracraededa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           607 AATT---GGAAAGGAGCAAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCAGCTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       General Boy, Application US/10421654

| Bacquence Boy, Application US/10421654
| Publication No. US20040005604A1
| Caneral No. US20040005604A1
| GENERAL INFORMATION:
| APPLICANT: Gramatikova, Svetlana | APPLICANT: Lam, David E. |
| APPLICANT: Lam, David E. |
| APPLICANT: Barron, Nelson. R. |
| APPLICANT: Barron, Nelson. R. |
| TITLE OF INVENTION: METHODS FOR MAKING AND USING THEM |
| TITLE OF INVENTION: METHODS FOR MAKING AND USING THEM |
| TITLE OF INVENTION: MUMBER: US/10/421,654 |
| CURRENT APPLICATION NUMBER: US/20401 |
| PRIOR APPLICATION NUMBER: US 60/374,313 |
| PRIOR PILING DATE: 2002-04-19 |
| NUMBER OF SEQ ID NOS: 106 |
| SEQ ID NO 89 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBER: PastSEQ for Windows Version 4.0 |
| LENGTH NUMBE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           24; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                 GAAGCGCAGCGCGTTACAGCTGGTTATATTCATTTGTGGTTTGATACGTATGT 839
                                                                                                                                                                                                                                                                                                                                                                                                                              Length 1422;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ) OTHER INFORMATION: Obtained from an environmental sample US-10-421-654-89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9.0%; Score 76.8; DB 16;
52.2%; Pred. No. 3.1e-08;
tive 0; Mismatches 232;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity 52.29
Matches 280, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM: Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         313
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          430
                                                                                                                                                                                   667
                                                                                                                                                                                                                                          739
                                                                                                                                                                                                                                                                                                727
                                                                                                                                                                                                                                                                                                                                                                                                            787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                       8 8
                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                             È
                                                                                                                                                                                                                                                                                                                                        名
                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                             Š
```

```
546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               724 TCTCAAGAATATGCAGATAAATGGCGTGCGGAAAGTAACACCGGTGACAGGAAAGCGTTTA 783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              313 TCTCACTTTTATGATCCGGATACTGGAACAACATATATTCCTTTTGCGAAAC---ATGCA 369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         370 AAAGAACAGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAAAATCAAGATATG 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ses ardcardcrdcraarrirracagccorcacacacacagacrtrraaagrirrcaragggggrirr 624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAAAATTTTGTTGATACAATAAAAAAAAAATAACTATTGTTTCAGATAGCAATGGATATTGG 606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     607 AATT---GGAAAGGAGCAAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCAGCTAAA 663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           664 CAAGAITAICCTGGCGTTGTGAACGATACGACAAAAGATTGGTTTGTAAAAGCAGCCGTA 723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        745 gregaaarcegaacathaccaareacaachaaanaanaanaanaan 804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 504
                                                                                                              849
                                                                                                                                                                                                                                                                                                                                           Sequence 81, Application US/10421654

Sequence 81, Application No. US2004005604A1

CENURAL INFORMATION:
CENURAL INFORMATION:
CENURAL INFORMATION:
CENURAL INFORMATION:
CENURAL INFORMATION:
CENURAL INFORMATION:
CENURAL INFORMATION:
CENURAL INFORMATION:
CENURAL INFORMATION:
CURRENT BATCON. Nelson R.
CURRENT APPLICATION NUMBER: US/10/421,654

CURRENT APPLICATION NUMBER: US 60/374,313

PRIOR FILING DATE: 2002-04-19

PRIOR FILING DATE: 2002-04-19

NUMBER OF SEQ ID NOS: 106

SOFTWARE: FastSEQ for Windows Version 4.0

SEQ ID NO 81

LENGTH: 1422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  385 reteatrititacdarecedaracaadaacaacharaaggggaadaagaaccaacader
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 445 CTTTCACAAGGAGATAAATATTAAGAGGGAGAATACTTTAAGAAGGGCGACCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGCATGCAGCAAACTTTACGAATCT---TTCTTATCCAATGGGTTTCCATTCTAAATAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CAGCAAGCATTCTTCTACTTAGGATTATCGCTTCATTATTTAGGAGATGTGAATCAGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   505 AAACAAGCTITITATTATTATTATTAGTGTTACGCATTACTTTACAGATGCTACTCAACCA
745 graciaarcagaacaftaccaardacaadarraaarcrcacrataaraadadaacaar
                                                          724 TCTCAAGAATATGCAGATAAATGGCGTGCGGAAGTAACACCGGTGACAGGAAAGCGTTTA
                                                                                                           805 gcrc------rrrggcaacaagaagrargccagcrgrccagagarrra
                                                                                                                                                                     784 ATGGAAGCGCAGCGCGTTACAGCTGGTTATATTCATTTGTGGTTTGATACGTATGT 839
                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match

8.5%; Score 72; DB 16; Length 1422;
Best Local Similarity 51.7%; Pred. No. 4.5e-07;
Matches 277; Conservative 0; Mismatches 235; Indels 24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; OTHER INFORMATION: Obtained from an environmental sample US-10-421-654-81
```

```
STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-781-986A-470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 13
US-10-329-624-470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ሯ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  107 TAAGATGGTCAGCTGAGGATAAGCATAATGAGGGGATTAACTCTCATTTGTGGATTGTAA 166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          227 TTAGTTGGTCCGCGGATAATCCGACAAATACTGACGTAAATACGCACTATTGGCTTTTTA 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 167 ATCGTGCAATTGACATCATGTCTCGTAATACAACGATTGTGAATCCGAATGAAACTGCAT 226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 470, Application US/08781986A
Publication No. US20030054436A1
GENERAL INPORMATION:
APPLICANT: Charles Kunsch
TITLE OF INVENTION: Staphylococcus aureus Polynucleotides and Sequences
NUMBER OF SEQUENCES: 5255
CORRESPONDENCE ADDRESS:
ADDRESSEE: Human Genome Sciences, Inc.
STREET: 9410 Key West Avenue
CITY: Rockville
STATE: Maryland
CCUNTRY: USA
--TITGGCAACAAGAAGTIATGCCAGCTGTCCAGAGGAGTTTA 849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 107 aactraaaaatrircgacaaacaaarrgcrcaaggaararargacgcggarcaraaaaarc 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gapa
                                                                           850 GAGAACGCACAAAGAAACACGCCGCATTTATTCATTTATGCTTTAAAACATTTGT
                                     784 ATGGAAGCGCAGCGCGTTACAGCTGGTTATTCATTTGTGGTTTGATACGTATGT
                                                                                                                                                              US-10-399-GL-39/ACC
; Sequence 3772, Application US/10398221
; Publication No. US20040018514A1
; GENERAL INFORMATION:
; APPLICANT: KUNST: Frederik
; APPLICANT: GLASER, Philippe
; TITLE OF INVENTION: Listeria innocua, genome and applications
; FILE REFERENCE: 344 702 - US
; CURRENT FILING DATE: 2003-03-27
; PRIOR APPLICATION NUMBER: US/10/398,221
; PRIOR PLICATION NUMBER: PCT/FR 01/03 061
; PRIOR FILING DATE: 2001-10-04
; PRIOR PLICATION NUMBER: FR 00/12 697
; RIOR FILING DATE: 2001-10-04
; NUMBER OF SEQ ID NOS: 4025
; SOFTWARE: PatentIn version 3.0
; SOFTWARE: PatentIn version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 4562;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTTATTATGATAATAGTACATATGCTTCTCACTTTTATGATCCGGAT 333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CATATTATGATACTAGTACGTTTTTATCTCATTTTTATAATCCTGAT 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 57.4; DB 16; Length
Pred. No. 0.0029;
0; Mismatches 106; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY: misc_feature; LOCATION: (1)..(end); OCTHER INFORMATION: n can be any nucleotide: a,g,c or t/u US-10-398-221-3772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ZIP: 20850
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.50 inch, 1.4Mb storage
COMPUTER: HP Vectra 486/33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM: Listeria monocytogenes 4b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 6.8%;
Best Local Similarity 53.3%;
Matches 121; Conservative
805 GCTC----
                                                                                                                                     RESULT 11
US-10-398-221-3772/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 12
US-08-781-986A-470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH: 4562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   47
셤
                                     ò
                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     윉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
```

```
GENERAL INFORMATION:

APPLICANT: Charles Kunsch
(31 H. Choi
Patrick S. Dillon
Craig A. Rosen
Steven C. Barash
Michael R. Fannon
TITLE OF INVENTION: Staphylococcus aureus Polynucleotides and Sequences
NUMBER OF SEQUENCES: 5256
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4223 TGATGGTCAGATTTCAGAAAAGAAAGAAATTGAAAAGCTTGAAAATCAAAGKG 4282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1283 TGACATCACTGTTAAAGAATTGAGTAAGACTGAAAAAGAGCAAGAGGGGTATTTTAGTAAG 4342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4523 TGATCAAAGACATAAGGATGAAGTAAGAAAGGCAAAATCTAAAAAAGATGCTGTAGTAGA 4582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4403 AGAAAAAGCAAGAAAAGCAAGAAAAAAAAGAAGTGGGTAAAGGTATGAAGATGATGTCAT 4462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4463 TGCTATAAAAATAACGTCAACCTTTCTAAGTCTGAAAAAGATAAATTGTTAGCTATTGC 4522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            321 TTATGATCCGGATACTGGAACAACATATATTCCTTTTGCGAAACATGCAAAAGAAACAGG 380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    381 CGCAAAATATTTTAACCTTGCTCGAGCATACCAAAATCAAGATATGCAGCAAGTT 440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAACTITACGAATCTITCTTATCCAATGGGTTTCCATTCTAAATACGAAAATTTTGTTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          621 AAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCAGCTAAACAAGATTATCCTGGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               561 TACAATAAAAATAACTATATTGTTTCAGATAGCAATGGATATTGGAATTGGAAAGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 9821;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 43.4; DB 8; Length 9 Pred. No. 11; 0; Mismatches 221; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4583 CGTTGTTAAAAGCAAATAAAGATATTGATAAGAA 4619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     681 TGTGAACGATACGACAAAGATTGGTTTGTAAAAGCA 717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE: Human Genome Sciences, Inc. STREET: 9410 Key West Avenue
MSDOS version 6.2
                      SOPTWARE: ASCII Text
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/781,986A
FILING DATE:
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 470, Application US/10329624
Publication No. US20040043037A1
                                                                                                                                                                                                                                                             NAME: Benson, Bob
REGISTRATION NUMBER: 30,446
REFERENCE/DOCKET NUMBER: PB246
TELECOMMUNICATION INPORMATION:
TELEPHONE: (301) 309-8512
INFORMATION FOR SEQ ID NO: 470:
SEQUENCE CHARACTERISTICS:
LENGTH: 9821 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5.1%;
                                                                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE:
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity 44.3
Matches 176; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          nucleic acid
OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TOPOLOGY: linear
```

```
700 cerradearereceaececeáricearrireariricardarereceraraarricaecaarir 641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   760 aattatricacatgaaagctricattaaaactrircricaatrirarcaacataricaarga 701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         523 CCAATGGGTTTCCATTCTAAATACGAAAATTTTGTTGATACAATAAAAAATAACTATATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            820 esccaarcecacerreaceaerarerecasaaaraacresigragraarrarares
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             403 GGTCAAGCATACCAAAATCAAGATATGCAGCAAGCATTCTTCTACTTAGGATTATCGCTT
                                                                                    APPLICANT: MOTT, John
TITLE OF INVENTION: ANTIMICROBIAL METHODS AND MATERIALS
FILE REPRENCE: 6212.N2
CURRENT APPLICATION NUMBER: US/09/966,521
CURRENT FILING DATE: 201-09-28
NUMBER OF SEQ ID NOS: 145
SOFTWARE: Patentin version 3.0
SEQ ID NO 21.
                                                                                                                                                                                                                                                                                                                                                                                                  Score 43.2; DB 10;
Pred. No. 3.4;
0; Mismatches 103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5.1%; Score 43.2;
50.5%; Pred. No. 3.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       583 GTTTCAGATAGCAATGGATATTGGAATT 610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 640 ccrirrrcaagrarregaracragaarr 613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; sequence 21, Application US/10429094; Publication No. US20030180821A1; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: DNA ORGANISM: Staphylococcus aureus
                                                                                                                                                                                                                                                                                                        ; TYPE: DNA
; ORGANISM: Staphylococcus aureus
US-09-966-521-21
                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity 50.5%;
Matches 105; Conservative
                                       ARVIDSON, Staffan
HARRIS, Douglas
MOTT, John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity 50.5
Matches 105; Conservative
TOMICH, Che-Shen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-429-094-21/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-429-094-21
                                               APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4463 recrairananaharacercancerricrangerergananagaran refragerarrec 4522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4283 TGACATCACTGTTAAAGAATTGAGTAAGACTGAAAAAGAGCAAGAGCGTATTTTAGTAAG 4342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1343 AATGCAAAGAAACAGAAATGCTTATTCAATAGACGAAGCGAGCAAAGCAATTAAAGAAGC 4402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4523 TGATCAAAGACATAAGGATGAAGTAAGAAAGGCAAAATCTAAAAAAGATGCTGTAGTAGA 4582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4223 TGATGGTCAGATTTCAGAAAATGAAAGAAATTGAAAAGCTTGAAAATCAAAGACG 4282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4403 agaaaaagcaagaaaaagcaagaaaaaaaaagaagiggataagcagtatgaagatgatgatcat 4462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                501 AAACTTTACGAATCTTTCTTATCCAATGGGTTTCCATTCTAAATACGAAATTTTGTTGA 560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    321 TTATGATCCGGATACTGGAACAACATATTCCTTTTGCGAAACATGCAAAAGAAACAGG 380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   621 AAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCAGCTAAACAAGATTATCCTGGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           561 TACAATAAAAATAACTATATTGTTTCAGATAGCAATGGATATTGGAATTGGAAAGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 9821;
                                                                       ZIP: 20850
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.50 inch, 1.4Mb storage COMPUTER: HP Vectra 486/33
OPERATING SYSTEM: MSDOS version 6.2
SOFTWARE: ASCII TEXT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1583 CGTTGTTAAAAGCAAATAAAGATATTGATAAAGAA 4619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               681 TGTGAACGATACGACAAAGATTGGTTTGTAAAAGCA 717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match 5.1%; Score 43.4; DB 13; Best Local Similarity 44.3%; Pred. No. 11; Matches 176; Conservative 0; Mismatches 221;
                                                                                                                                                                                                        CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/10/329,624

FILING DATE: 27-Dec-2002

PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/956 171

FILING DATE: OCCODE-20, 1997
APPLICATION NUMBER: 60/009,861

FILING DATE: January 5, 1996
APPLICATION NUMBER: 08/781,986
FILING DATE: January 3, 1997

ATTORNEY/AGENT INFORMATION:
NAME: MAKE 4, 1997

TELEPOMONICATION NUMBER: 46,789

REFERENCE/DOCKET NUMBER: PB248PID1

TELEPOMONICATION INFORMATION:
TELEPOMONICATION INFORMATION:
TELEPHONE: (240) 314-1224

TELEPHONE: (240) 309-8439

INFORMATION FOR SEQ ID NO: 470:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOPOLOGY: linear
SEQUENCE DESCRIPTION: SEQ ID NO: 470:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE CHARACTERISTICS:
LENGTH: 9821 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-329-624-470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            윰
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
```

Gaps

ö

Indele

Length 837;

582

```
ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               820 GGCCAATCGCACCTTGACCAGTATGTGCAGAATAACTGGTGTAGTTACATTTATATGT 761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  760 AATTATTCACATGAAAGCTTCATTAAAACTTTCTTCAATTTATCAACATATTCAATGA 701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gapa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 837;
APPLICANT: TOWICH, Che-Shen
APPLICANT: TOWICH, Che-Shen
APPLICANT: ARVIDSON, Staffan
APPLICANT: ARVIDSON, Staffan
APPLICANT: HARKIS, Douglas
APPLICANT: HARKIS, Douglas
TITLE OF INVENTION: ANTIMICROBIAL METHODS AND MATERIALS
TITLE OF INVENTION: ANTIMICROBIAL METHODS AND MATERIALS
TITLE OF INVENTION: ANTIMICROBIAL METHODS AND MATERIALS
TITLE OF INVENTION: 2007-405-094
CURRENT APPLICATION NUMBER: US 09/966,521
PRIOR PELING DATE: 2003-09-28
NUMBER OF SEQ ID NOS: 145
SOFTWARE: PATENTIN VETSION 3.0
SEQ ID NO 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IndelB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        403 GGTCAAGCATACCAAAATCAAGATATGCAGCAAGCATTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0; Mismatches 103;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
```

US-09-966-521-21/c

1 Sequence 21, Application US/09966521
1 Publication No. US20030087321A1
1 GENERAL INFORMATION:

Mon Aug

8 8 8

Search completed: August 2, 2004, 04:20:53 Job time : 511 secs

Color Minole oco 2111

```
August 1, 2004, 23:39:34; Search time 432 Seconds (without alignments) 8348.889 Million cell updates/sec
                                                                                                                                                                                                                             1 atgaaaaagaaagtattagc.......8tacgtatgtaaatcgctaa 849
                                                                                                                                                                                                                                                                                                                                                                  6747726
GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                            Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                          3373863 segs, 2124099041 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                      - nucleic search, using sw model
                                                                                                                                                                                                                                                               IDENTITY NUC
Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    geneseqn2000s:*
geneseqn2001as:*
geneseqn2001bs:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              geneseqn2002s:*
geneseqn2003as:*
geneseqn2003bs:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N_Geneseq_29Jan04:*
1: geneseqn1980s:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         geneseqn2003cs:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           geneseqn2004s:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    geneseqn1990s:*
                                                                                                                                                                                                                                                                                                                                                                                                    Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                       PCT-US03-12556-1
                                                                                                                                                                                     Title:
Perfect score:
                                                                                                                                                                                                                                                                 Scoring table:
                                                                        OM nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Database :
                                                                                                                                                                                                                             Sequence:
                                                                                                                                                                                                                                                                                                                          Searched:
                                                                                                              Run on:
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

	Description	Abq67927 Listeria	Abg69833 Listeria	Continuation (3 of	Abq70959 Listeria	Aat36392 Lactococc	Aav74781 Staphyloc	Aaa70152 Plasmodiu	Aaa70178 Plasmodiu	Ada71938 Rice gene	Acf72350 Staphyloc	Acf74582 Staphyloc	Adc21339 Staphyloc		Add52527 Staphyloc	Aaa70220 Plasmodiu	Aav74441 Staphyloc	Abk28258 DNA trans	Aaa68254 Bacteriop	Abq39490 Oligonucl			Abl92260 Chemicall	Aac84742 S. pneumo
SUMMARIES	ΩI	ABQ67927	ABQ69833	ABA03041 02	ABQ70959	AAT36392	AAV74781	AAA70152	AAA70178	ADA71938	ACF72350	ACF74582	ADC21339	ADC25025	ADD52527	AAA70220	AAV74441	ABK28258	AAA68254	ABQ39490	ABQ39491	ABL33586	ABL92260	AAC84742
	DB	9	ø	ø	9	7	~	m	m	7	7	7	0	σ	σ	m	N	9	٣	9	ø	9	9	4
	% Query Match Length DB	870	870	110000	4562	3706	9821	6033	3738	2000	6222	837	837	837	837	2700	5924	8170	43095	696	696	6227	6227	2319
	& Query Match	18.2	18.2	18.2	6.9	5.5	5.4	5.3	5.3	5.3	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	4.9	4.9	4.9	4.9	4.9
	Score	154.4	154.4	154.4	57.4	46.6	45.8	45.4	45.2	45	43.4	43.2	43.2	43.2	43.2	43.2	43.2	43	43	42	42	41.8	41.8	41.6
	Result No.	п	7	٣	Ω 4	0	y	7	ω	6	10	c 11	c 12	c 13	c 14	15	c 16	c 17	18	c 19	20	c 21	c 22	23

Aav52332 Streptoco Aay21806 Streptoco Abx06302 S. preumo Aca49616 Prokaryot Continuation (17 o Abg67195 Listeria Continuation (5 of Continuation (6 of Ada71938 Rice gene Ab11946 Drosophil Abg75107 Anopheles Acf7720 Mosguito Aca70211 Plasmodiu Aca41139 Prokaryot Aas57136 Staphyloc Aas57136 Staphyloc Aas57136 Staphyloc Aas57136 Staphyloc Aas57305 Clostridi Aax99337 Nucleic a Aca52696 Prokaryot Aag10244 Streptoco Aat4317 Type-6 M-	, mutational analysis,	Kunst F, Glaser P; Kunst F, Glaser P; Kunst F, Glaser P; WPI; 2002-332479/37. New genomic sequences from Listeria species, useful for detection, treatment and prevention of infection, also related polypeptides, antibodies and modulators. Claim 16; SEQ ID NO 740; 180pp; French. The present invention relates to nucleic acid sequences (ABQ67188-ABQ71212) from Listeria sp. The sequences are useful as probes and primers for identification and/or detection of Listeria (e.g. as contaminants in foods, or muteational analysis) and for analysis of gene expression. Proteins encoded by the nucleic acid sequences can be used to secren for compounds that modulate gene expression, replication and pathogenicity of Listeria (potential therapeutic agent), also for treating infections by Listeria, and are useful as immunogens in anti-Listeria vaccines. Note: The sequence data for this patent did not form
2 AAV52332 7 ABQ77399 3 AAZ91806 7 ACA49616 6 ABQ62345 16 ABQ67195 0 7 ABS56454 7 ABS56454 7 ABS56454 6 ABQ75107 7 ABS56454 6 ABQ75107 7 ACA43139 7 ACA43139 7 ACA43139 7 ACA5266 2 AAC9237 7 ACA5266 2 AAC9237 7 ACA5266 2 AAC9237 7 ACA5266	ALIGNMENTS; 870 BP. EGD DNA sequence #51. i, food contamination; EGD. BGD. 12697.	(CNRS) CNRS CENT NAT RECH SCI. Kunst F, Glaser P; WPI; 2002-332479/37. New genomic sequences from Listeria species, useful for treatment and prevention of infection, also related polantibodies and modulators. Claim 16; SEQ ID NO 740; 180pp; French. The present invention relates to nucleic acid sequences primers for identification and/or detection of Listeria sprimers for identification and/or detection of Listeria expression. Proteins encoded by the nucleic acid sequences expression. Proteins encoded by the nucleic acid sequences expression. Proteins encoded by the nucleic acid sequences for compounds that modulate gene expression, rep) pathogenicity of Listeria (potential therapeutic agents treating infections by Listeria, and are useful as immulisteria vaccines. Note: The sequence data for this pate
4.9 2911 4.9 3840 4.9 6423 4.9 6423 4.9 10000 4.9 110000 4.9 110000 4.9 2000 4.8 4985 4.8 4985 4.8 4985 4.8 4985 4.7 1014 4.7 3347 4.7 3347 4.7 347 4.7 347 4.7 347 4.7 347 4.6 348 4.6 498 4.8 498 4.8 498 4.8 498 4.8 498 4.8 498 4.9 498 4.0 1014 4.7 347	ndard; DNA, (revised) (first ent) ocytogenes 1; Listeriè 5. ocytogenes A2: 2001WO-FR(2000FR-000 PASTEUR.	Glaser P; -332479/37332479/37332479/37. ic sequences from Lister and prevention of infects and modulators. SEQ ID NO 740; 180pp; From Listeria sp. The strom Listeria sp. The strom Listeria sp. The strom Listeria sp. The strom Listeria sp. The strom in foods, or mutation. Proteins encoded by the compounds that modulateria of Listeria (potentifications by Listeria, vaccines. Note: The sequence of the strom of the strong of
225 4 411.6 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	7927; 7927; WG-20 eria bacte ction eria 02288 PR-20 CT-20	Kunst F, Glaser P; WPI; 2002-332479/37. WPI; 2002-332479/37. New genomic sequences fro treatment and prevention antibodies and modulators Claim 16; SEQ ID NO 740; The present invention relable for interior sequences fro identification for in foods, or expression. Proteins enco expression. Proteins enco expression. Proteins enco expression. Proteins enco expression. Proteins enco expression. Proteins enco expression. Proteins enco expression. Proteins enco expression. Proteins enco expression and foods. In the pathogenicity of listeria treating infections by Li Listeria vaccines. Note:
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	RESULT 1 ABQ67927 XX AC AC AC AC AC AC AC AC AC AC AC AC AC	

```
11-APR-2002
    $X4X6X6CCCCCX8X4F4FXXXAFXBXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                 유
                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                   619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               739
                                                                                                                                        217
                                                                                                                                                                                                                                         379
                                                                                                                                                                                                                                                             397
                                                                                                                                                                                                                                                                               439
                                                                                                                                                                                                                                                                                                                      499
                                                                                                                                                                                                                                                                                                                                        517
                                                                                                                                                                                                                                                                                                                                                            559
                                                                                                                                                                                                                                                                                                                                                                                                                    637
                                                                                                                                                                                                                                                                                                                                                                                                                                        ATCAAGCAACGGAAGACATGGTAGCAAAAAGATTTTGCTCAGATGACGTGAAAGACTGGC 679
                                                                                                                                                                                                                                                                                                                                                                                                                                                           697
                                                                                                                                                          GGCTTTTTAAACAAGCGGAAAAATACTAGCTAAAGATGTAAATCATATGCGAGCTAATT 259
                                                                                                                                                                               277
                                                                                                                                                                                                 260 TAATGAATGAACTTAAAAATTCGATAAACAAATAGCTCAAGGAATATATGATGCGGATC 319
                                                                                                                                                                                                                      337
                                                                                                                                                                                                                                                                                                  part of the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published_pct_sequences. (Updated on 29-AUG-2003 to standardise OS field)
                                                                                                                                                                                                                                                                         CAATCCATTATTATGGGATATTAGTCAACCTATGCACGCCAATAATTTTACCGCAATAT
                                                                                                  CACCGATTTTAAGATGGTCAGCTGAGGATAAGCATAATGAGGGGATTAACTCTCATTTGT
                                                                                                                    CACATAAACTTAGTTGGTCCGCGGATAACCCGACAAATACTGACGTAAATACGCACTATT
                                                                                                                                        GGATTGTAAATCGTGCAATTGACATCATGTCTCGTAATACAACGATTGTGAATCCGGAATG
                                                                                                                                                                               ACGAGAATCCTTATTATGATAATAGTACATATGCTTCTCACTTTTATGATCCGGATACTG
                                                                                                                                                                                                                                       ATABABATCCATATTATGATACTAGTACATTTTTATCTCATTTTTATAATCCTGATAGAG
                                                                                                                                                                                                                                                             GAACAACATATATTCCTTTTGCGAAACATGCAAAAGAAACAGGCGCGAAAATATTTAAACC
                                                                                                                                                                                                                                                                                                                     AATĊGGTGACTĞATTACCGAGAAGGGAAATTTGACACAĞCGTTTTATAAATTAĞGCCTAĞ
                                                                                                                                                                                                                                                                                                                                         CTTATCCAATGGGTTTCCATTCTAAATACGAAAATTTTGTTGATACAATAAAAATAACT
                                                                                                                                                                                                                                                                                                                                                                                                  CATACCCTCCAGGCTACCACTGTGCATATGAAATTACGTAGATACCATTAAACACAATT
                                                                                                                                                                                                                                                                                                                                                                                                                    ATATTGTTTCAGATAGCAATGGATATTGGAATTGGAAAGGAGCAAAACCCCAGAAGATTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTGAAGGAGCAGCGGTAGCAGCTAAACAAGATTATCCTGGCGTTGTGAACGATACGACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCTATGAAAATGCGAAAAGGGGGAAAGCGGACTACCCGAAAATAGTCAATGCGAAAACTA
                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            analysis;
                                                                               ö
                                                            DB 6; Length 870;
                                        Sequence 870 BP; 328 A; 149 C; 160 G; 233 T; 0 U; 0 Other;
                                                          Query Match
18.2%; Score 154.4; DB 6; Length
Best Local Similarity 53.1%; Pred. No. 3.9e-29;
Matches 329; Conservative 0; Mismatches 291; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Antibacterial; Listeria; food contamination; mutational
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Listeria monocytogenes EGDe DNA sequence #45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAGATTGGTTTGTAAAAGCA 717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Listeria monocytogenes; EGDe.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ABQ69833 standard; DNA; 870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (revised)
(first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₫
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO200228891-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29-AUG-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       infection;
                                                                                                  98
                                                                                                                     140
                                                                                                                                                            200
                                                                                                                                                                                                                       278
                                                                                                                                                                                                                                         320
                                                                                                                                                                                                                                                             338
                                                                                                                                                                                                                                                                                                   398
                                                                                                                                                                                                                                                                                                                       440
                                                                                                                                                                                                                                                                                                                                                                               518
                                                                                                                                                                                                                                                                                                                                                                                                   260
                                                                                                                                                                                                                                                                                                                                                                                                                      578
                                                                                                                                                                                                                                                                                                                                                                                                                                          620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ABQ69833;
                                                                                                                                                                                                                                                                                                                                         458
                                                                                                                                                                                                                                                                                                                                                             200
                                                                                                                                                                                                                                                                                                                                                                                                                                                              638
                                                                                                                                        158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                        දු දු
                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                               g
                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
   ន្តដូច្ចមួច
                                                                                                                   a
                                                                                                                                                       a
                                                                                                                                                                             ઠે
                                                                                                                                                                                                셤
                                                                                                                                                                                                               ⋧
                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                       용
                                                                                                                                                                                                                                                                                                                                                                         કે
                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                  કે
                                                                                                                                        ò
```

```
The present invention relates to nucleic acid sequences (ABQ67188-ABQ71212) from Listeria sp. The sequences are useful as probes and primers for identification and/or detection of Listeria (e.g. as contaminants in foods, or mutational analysis) and for analysis of gene expression. Proteins encoded by the nucleic acid sequences can be used to screen for compounds that modulate gene expression, replication and pathogenicity of Listeria (potential therapeutic agents), also for treating infections by Listeria, and are useful as immunogens in antilisteria vaccines. Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at ffp.wipo.int/pub/published_pct_sequences. (Updated on 29-AUG-2003 to standardise OS field)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGATTGTAAATCGTGCAATTGACATCATGTCTCGTAATACAACGATTGTGAATCCGAATG 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AATCGGTGACTGATTACCGAGAAGGGAAATTTGACACAGGGTTTTATAAATTAGGCCTAG 499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               517
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATATTGTTTCAGATAGCAATGGATATTGGAATTGGAAAGGAGCAAACCCCAGAAGATTGGA 637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            260 TAATGAATGAACTTAAAAAATTCGATAACAAATAGCTCAAGGAATATATGATGCGGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     278 ACGAGAATCCTTATTATGATAATAGTACATATGCTTCTCACTTTTATGATCCGGATACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              380 ATAATACTTATTTGCCGGGTTTTGCTAATGCGAAAATAACAGGAGCAAAGTATTTCAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>caarccatratraracggaratragrcaaccrargcacgccaararatraracgcaarar</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             caraccirccacicracicaricrararararariacciracitacaritararcacarr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        140 CACATAAACTTAGTTGGTCCGCGATAACCCGACAAATACTGACGTAAATACGCACTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 200 GGCTTTTTAAACAAGCGGAAAAAAAATACTAGCTAAAGATGTAAATCATATGCGAGCTAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            338 GAACAACATATATTCCTTTTGCGAAACATGCAAAAGAAACAGGCGCAAAATATTTAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTTATCCAATGGGTTTCCATTCTAAATACGAAAATTTTGTTGATACAATAAAAATAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CACCGATTTTAAGATGGTCAGCTGAGGATAAGCATAATGAGGGGATTAACTCTCATTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                    New genomic sequences from Listeria species, useful for detection, treatment and prevention of infection, also related polypeptides, antibodies and modulators.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 870;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 870 BP; 328 A; 149 C; 160 G; 233 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 154.4; DB 6;
Pred. No. 3.9e-29;
0; Mismatches 291;
                                                                                                                                                                                                                                                                                                                                                                                                                      Claim 16; SEQ ID NO 2646; 180pp; French
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity 53.1%;
Matches 329; Conservative (
04-OCT-2001; 2001WO-FR003061
                                                       04-OCT-2000; 2000FR-00012697
                                                                                                         (INSP ) INST PASTEUR.
(CNRS ) CNRS CENT NAT
                                                                                                                                                                                                                                               WPI; 2002-332479/37.
                                                                                                                                                                                              Glaser P;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           578
                                                                                                                                                                                              Kunst F,
```

ô

619

ATCAAGCAACGGAAGACATGGTAGCAAAAGATTTTGCTCAGATGACGTGAAAGACTGGC

620

а ठे

ઠે g

```
11924 CAATCCATTATTATAACGGATATTAGTCAACCTATGCACGCCAATAATTTTACCGCAATAT 11983
                                                                                                                                                                                                                                           rcrargaaargccaaaaggccaaaagcccacraccccaaaaracrcaargccaaaacra 12163
                                                                                                                                                                         12044 ATCAAĞCAACGGAAGACATGGTAGCAAAAGATTTTGCTCAGATGACGTGAAAGACTĞGC 12103
                                                                                                                                                                                                              697
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The present invention relates to nucleic acid sequences (ABQ67188-ABQ71212) from Listeria sp. The sequences are useful as probes and primers for identification and/or detection of Listeria (e.g. as contaminants in foods, or mutational analysis) and for analysis of gene expression. Proteins encoded by the nucleic acid sequences can be used to screen for compounds that modulate gene expression, replication and pathogenicity of Listeria (potential therapeutic agents), also for treating infections by Listeria, and are useful as immunogens in anti-Listeria vaccines. Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published_pot_sequences. (Updated on 29-AUG-2003 to standardise OS field)
                                                                                                                                                                                                              TTGAAGGAGCAGCGGTAGCAACCAAGATTATCCTGGCGTTGTGAACGATACGACAA
                                                                                                                                        ATATTGTTTCAGATAGGATATTGGAATTGGAAAGGAGCAAACCCAGAAGATTGGA
CITATCCAATGGGTTTCCATTCTAAATACGAAAATTTTGTTGATACAATAAAAATAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            New genomic sequences from Listeria species, useful for detection, treatment and prevention of infection, also related polypeptides, antibodies and modulators.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Antibacterial; Listeria; food contamination; mutational analysis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 4562 BP; 1166 A; 943 C; 782 G; 1671 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Listeria monocytogenes 4b contig DNA sequence #901.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Claim 14; SEQ ID NO 3772; 180pp; French
                                                                                                                                                                                                                                                                                                                   12164 AAAATCATATTTAGTAGGA 12183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Listeria monocytogenes ATCC 19115.
                                                                                                                                                                                                                                                                                AAGATTGGTTTGTAAAAGCA 717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (INSP ) INST PASTEUR.
(CNRS ) CNRS CENT NAT RECH SCI.
                                                                                                                                                                                                                                                                                                                                                                                                           ABQ70959 standard; DNA; 4562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  04-OCT-2000; 2000FR-00012697.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                04-OCT-2001; 2001WO-FR003061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (revised)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 2002-332479/37.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Glaser P;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO200228891-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      infection; ds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29-AUG-2003
29-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11-APR-2002
                                                                                                                                                                                                                                                                                  . 869
                                                                                                                                        578
                                                                                                                                                                                                              638
                                                                                                                                                                                                                                                 12104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Kunst F,
458
                                                                    518
                                                                                                                                                                                                                                                                                                                                                                                                                                            ABQ70959;
                           g
                                                                                                 g
                                                                                                                                        ò
                                                                                                                                                                         윰
                                                                                                                                                                                                            8
                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                         om base 200001 (Listeria monocytogenes EGD-e genome
LOCUS ABA03041 Accession Aba03041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11564 CACATAAACTTAGTTGGTCCGCGGATAACCCGACAAATACTGACGTAAATACGCACTATT 11623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11684 TAATGAATGAACTTAAAAAATTCGATAAACAAATAGCTCAAGGAATATATGATGCGGATC 11743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11744 ATAAAAATCCATATTATGATACTAGTACATTTTTATCTCATTTTTATAAATCCTGATAGAG 11803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11864 AATĆGĆTGACTGATTAČĆGAGAAGGGAAATŤTGACACGĆGŤTTTATAAATŤTAĞĆCCTAG 11923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11624 GGCTTTTTAAACAAGCGGAAAAATACTAGCTAAAAGTGTAAATCATATGCGAGCTAATT 11683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11804 ATAATACTTATTTGCCGGGTTTTGCTAATGCGAAAATAACAGGAGCAAAGTATTTCAATC 11863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     457
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                217
                               rcrargaaaargcgaaaaggcgaaaaggcggacracccgaaaaragrcaargcgaaacra 739
TTGAAGGAGCAGCGGTAGCAGCTAAACAAGATTATCCTGGCGTTGTGAACGATACGACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CACCGATTTTAAGATGGTCAGCTGAGGATAAGCATAATGAGGGGATTAACTCTCATTTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGATTGTAAATCGTGCAATTGACATCATGTCTCGTAATACAACGATTGTGAATCCGAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACGAGAATCCTTATTATGATAATAGTACATATGCTTCTCACTTTTATGATCCGGATACTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAACAACATATACCTTTTGCGAAACATGCAAAAGAAACAGGCGCAAAATATTTAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 110000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ..
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. 1.6e-28;
0; Mismatches 291;
                                                                                                                                                                                           ABA03041 from base 200001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 154.4;
                                                                                                                                                                                                                                                              210000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2910000
2944528
                                                                                                                                                                                                                                                                                                                     10000
                                                                                                                                                                                                                                                                                                                                                                                           10000
                                                                                                                                                                                                                                                                                                                                                                                                           00001
                                                                                                                                                                                                                                               110000
                                                                                                                                                                                                                                                                                                  410000
                                                                                                                                                                                                                                                                                                                                   610000
                                                                                                                                                                                                                                                                                                                                                                        810000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1910000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2610000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2710000
                                                                                                                                                                                                                                                                                                                                                                                                                          1110000
                                                                                                                                                                                                                                                                                                                                                                                                                                              0000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1510000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1610000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1710000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1810000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2010000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2110000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2210000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2310000
                                                                                                                                                                                                                                                                                                                                                                                                                                                               1310000
                                                                                            AAGATTGGTTTGTAAAAGCA 717
                                                                                                                                                                                                              fragments
Begin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       53.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2700001
2800001
2900001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18.2%;
                                                                                                                                                                                                                                                               100001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1500001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1700001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1900001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2000001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2100001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            220000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                         90
30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity
Matches 329; Conser
                                                                                                                                                                                        tinuation (3 of 30)
Sequence split into
                                                                                                                                                                                                                              Fragment Name
ABA03041 00
                                                                                                                                                                                                                                                                                                                            ABA03041_05
ABA03041_06
ABA03041_07
                                                                                                                                                                                                                                                              ABA03041_01
ABA03041_02
ABA03041_03
ABA03041_04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ABA03041_27
ABA03041_28
ABA03041_29
                                                                                                                                                                                                                                                                                                                                                                                     ABA03041_08
                                                                                                                                                                                                                                                                                                                                                                                                        ABA03041_09
                                                                                                                                                                                                                                                                                                                                                                                                                            ABA03041 1
                                                                                                                                                     RESULT 3
CABAGGAL 02
CONTINUATION (3 O
WP SEQUENCE SPLITE
WP ABAGGGAL 02
WP ABAGGGAL 03
WP ABAGGGAL 04
WP ABAGGGAL 04
WP ABAGGGAL 04
WP ABAGGGAL 04
WP ABAGGGAL 04
WP ABAGGGAL 04
WP ABAGGGAL 04
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGAL 17
WP ABAGGGGAL 17
WP ABAGGGGAL 17
WP ABAGGGGAL 17
WP ABAGGGGAL 17
WP ABAGGGGAL 17
WP ABAGGGGAL 17
WP ABAGGGGAL 17
WP ABAGGGGAL 17
WP ABAGGGGAL 17
WP ABAGGGGAL 17
WP ABAGGGGAL 17
WP ABAGGGGAL 17
WP ABAGGGGAL 17
WP ABAGGGGAL 17
WP ABAGGGGAL 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               338
                                 680
                                                                  869
                                                                                                   740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query
```

셤 ઠે 음 ò 임 ઠે 셤 ઠે 요

ሯ

```
AAV74781 standard; DNA; 9821
              WPI; 1996-393404/39.
P-PSDB; AAW02164, AAW02165.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity 47.7'
Matches 136; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Staphylococcus aureus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAV74781;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         XXCCCCCCXXXXXXCCCCCXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                      ö
                                                                                               166
                                                                                                                                   227 Tradricorcococaraarccoacaaracroacoraaraccororaaracococacararos
                                                                                                                                                                        ATCGTGCAATTGACATCATGTCTCGTAATACAACGATTGTGAATCCGAATGAAACTGCAT 226
                                                                                                                                                                                                              167 aacaagcagaaaaaaracragcraaagargragarcarargcgagcraarthargaarg 108
                                                                                                                                                                                                                                                     107 aactraaaaartregacaaacaaatreercaaeeaatraraheaceeeeearearaaaare 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lactococcus lactis subsp. cremoris W9 restriction-modification system
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lactic acid bacterium; Danish starter culture; cheese; enzyme; restriction endonuclease; methylase; fermented milk; phage resistance;
                                                                                             TAAGATGGTCAGCTGAGGATAAGCATAATGAGGGGATTAACTCTCATTTGTGGATTGTAA
                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'number= 1 /standard name= " Gene coding for LlaBI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'number= 2 /standard name= "Gene coding for LlaBI
                                                        ö
                    Length 4562;
                                                                                                                                                                                                                                                                                                                                CTTATTATGATAATAGTACATATGCTTCTCACTTTTATGATCCGGAT 333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /464. .3360
/*tag= b
/codon start= 2464
/product= "ilaBI restriction endonuclease"
/evidence= EXPERIMENTAL
                                                                                                                                                                                                                                                                                                                                                                    cararrargaracragracgrarrarcrcarrarrararccrgar 1
                Score 57.4; DB 6; Length 4 Pred. No. 0.00024; 0; Mismatches 106; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Josephsen J, Nyengaard NR, Vogensen FK, Madsen A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product= "LlaBI methylase"
/evidence= EXPERIMENTAL
/gene= " ORF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Lactococcus lactis subsp. cremoris; W9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
complement (422. .2161)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'codon start= 422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     멾.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         'label= m-llaBI
                                                                                                                                                                                                                                                                                                                                                                                                                                                     392/c
AAT36392 standard, DNA; 3706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 96WO-DK000076
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          95DK-00000179
                    6.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        *tag= a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           methylase
                                    al Similarity 53.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (JOSE/) JOSEPHSEN J.
(NYEN/) NYENGAARD N R.
(VOGE/) VOGENSEN F K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (revised)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MADS/) MADSEN A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17-FEB-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO9625503-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     19-FEB-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               22-AUG-1996.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16-OCT-2003
08-DEC-1996
                                                                                                                                                                                                                                                                                                                                287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAT36392;
                                                                                                                                                                                                                                                                                                                                                                        47
                                                                                                                                                                            167
                  Query Match
Best Local
                                                                                                 101
                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAT36392/

XXX

XXX

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AAT3-

AA
                                                                                                                                                                                                      쉱
                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                   셤
                                                                                                                                                                            ઠે
```

```
This DNA encodes the plasmid-derived type-II restriction- modification system from Lactococcus lactis subsp. cremoris W9, LlaB1, and contains 2 offse transcribed in the same direction and coding for putative proteins of 580 AA (LlaB1 methylase M.IlaB1, AAW02164) and 299 AA (LlaB1 endonuclease R.LlaB1, AAW02165). This restriction-modification system may be used in a method for conferring increased virus resistance, more specifically phage resistance, to a L. lactis strain used in cheese manufacture. (Updated on 16-OCT-2003 to standardise OS field)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        171 IGCAATIGACAICAIGICICGIAAIACAACGAIIGIGAAICCGAAIGAAACIGCAITAII 230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     231 AAATGAGTGGCGTGCTCATTTAGAAAATGGTATTTATTCTGCTGATTACGAGAATCCTTA 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1010 ATTTARTCGARTARTATATCTTATGARARTATGARCGGCARTGCTGTACCARTCAGCAT 951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       950 IGTCTCAATGAAGGAAAATTCCCTAATACTTTAAATTATTTTATTGCTATTAAAGACGA 891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    890 gcrcagraancgcangchggaanccanccarracarraggrangararggggggarc 831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  830 TCAAGCATTGAATAGCCATGTACCTAAAATAATTTTTCCTACAAATTCTTTGAATCCAAA 771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2811. .2880
/ttag b
/noce= these bases represent a line of missing text in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Computer readable medium; vaccine; S.aureus infection; immunodetection; cellulitis; eyelid infection; food poisoning; osteomyelitis; therapy; skin infection; surgical wound infection; scalded skin syndrome; toxic shock syndrome; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1021. .1080
/*tag= a
//tag= "these bases represent a line of missing text in the sequence listing in the specification. They are included to maintain the nucleotide numbering given in the specification for this DNA sequence"
Type II restriction-modification systems obtd. from Lactococcus lactis for conferring phage resistance on lactic acid bacteria, useful as starter cultures for cheese and fermented milk prods.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 51 AGTTCAAAGTGTAGTATTTGCACAAACAAATAATAGTGAAAGTCCTGCACCGATTTTAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               111 ATGGTCAGCTGAGGATAAGCATAATGAGGGGATTAACTCTCATTTGTGGATTGTAAATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5.5%; Score 46.6; DB 2; Length 3706; 47.7%; Pred. No. 0.12; ative 0; Mismatches 149; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 3706 BP; 1284 A; 535 C; 575 G; 1312 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       291 TTATGATAATAGTACATATGCTTCTCACTTTTATGATCCGGATAC 335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       770 cirigiaraririracagarrargcicirriraaraaragarargc 726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Staphylococcus aureus contig SEQ ID #470.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                     Claim 2; Page 67-69; 93pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BP.
```

S

7

text in

in

Staphylococcus aureus -in the production of antiotide(s) and proteins derived from computer readable medium and used

Rosen CA;

Fannon MR,

of the invention. The DNA sequences are recorded on a computer readable medium, preferably selected from a floppy or hard disk, random access memory (RAM), read-only memory (ROM) or CD-ROM, Homology searches using the S.aureus DNA sequences allows putative functions to be assigned so that protein-encoding or regulatory regions of commercial, therapeutic or industrial importance can be obtained. Specifically, sequences which are likely to encode antigens have been identified and these polypeptides can be used in a vaccine composition against S.aureus infection. The be used in a vaccine composition against S.aureus infection of S.aureus in a sample. S.aureus is implicated in numerous human diseases, including cellulitis, eyelid infections, food poisoning, osteomyalitis, skin and surgical wound infections, scalded skin syndrome, toxic shock syndrome, etc. Organisms transformed with the DNA sequences can be used for recombinant production of the polypeptides. The new DNA sequences can be used their fragments) are useful as primers or probes for isolating any of the S.aureus DNA sequences contained on the computer sequence represents one of 5191 Staphylococcus aureus DNA sequences readable medium homologues

Sequence 9821 BP; 3652 A; 1311 C; 1978 G; 2575 T; 0 U; 305 Other;

5.4%; Score 45.8; DB 2; Length 9821; 38.8%; Pred. No. 0.26; 0; Mismatches 282; Indels

Matches 179; Conservative

ઠ 셤 ò

Local Similarity

Query Match

ö

Gaps

. 0

4522 4523 TGATCAAAGACATAAGGATGAAGTAAGAAAGGCAAAATCTAAAAAAGATGCTGTAGTAGA 4582 1283 TGACATCACTGTTAAAGAATTGAGTAAGACTGAAAAAGAGCAAGAGCGTATTTAGTAAG 4342 4343 AATGCAAAGAAACAGAAATGCTTATTCAATAGACGAAGCGAGCAAAGCAATTAAAGAAGC 4402 680 The present invention describes proteins and their fragments (I) encoded by chromosome 2 of the human malarial parasite, Plasmodium falciparum. Also described are: (1) nucleotide sequences (II) encoding (I); and (2) vaccines against P. falciparum infection comprising (I) or (II). (I) and folyclonal antisers or a monoclonal antibody raised to immunogens comprising the sequences of (I), are useful in the detection comprising the sequences of (I), are useful in the detection of immunogens owniting the sequences of (I), are useful in the detection of infection with P. falciparum. Furthermore, (I) (especially when they TGTGAACGATACGACAAAAGATTGGTTTGTAAAAGCAGCCGTATCTCAAGAATATGCAGA 740 AAACTITACGAATCITICTIATCCAATGGGTTTCCATTCTAAATACGAAAATTTTGTTGA <u>agaaaagcaaggaaagcaagaaaaaaaaaagrggaragcagrargaaggargargrcar</u> 621 AAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCAGCTAAACAAGATTATCCTGGCGT Plasmodium falciparum chromosome 2 related DNA sequence SEQ ID NO:285. TACAATAAAAATTAACTATATTGTTTCAGATAGCAATGGATATTGGAAATTGGAAAGGAGC parasite, and in the Plasmodium falciparum; chromosome 2; human malaria parasite; antimalarial; malaria; protozoacide; infection; insecticide; malarial procines of 4683 TAAATGGCGTGCGGAAGTAACACCGGTGACAGGAAAGCGTT Proteins encoded by chromosome 2 of the human Plasmodium falciparum, useful as antimalarial diagnosis of P.falciparum infection. Venter JC; Disclosure; Page 493-495; 577pp; English Gardner M, BP. AAA70152 standard; DNA; 6033 99WO-US026796 98US-0107131P 07-NOV-2000 (first entry) ď Plasmodium falciparum WPI; 2000-365347/31. Carucci HOFFMAN S. CARUCCI D. GARDNER M. VENTER J C. WO200025728-A2 05-NOV-1999; 05-NOV-1998; 11-MAY-2000 Hoffman S, 501 261 681 741 AAA70152; 441 4403 (HOFF/) (VENT/) (CARU/) (GARD/ RESULT 7 AAA70152 a 셤 ò 셤 Š 셤 ઠે 셤 셤 Š ઠ ઠે

Venter JC;

Gardner M,

Carucci D,

Hoffman S,

(CARU/) CARUCCI D. (GARD/) GARDNER M. (VENT/) VENTER J C.

WPI; 2000-365347/31,

```
are rifins or secreted or membrane proteins) can aid the identification of drugs to treat or prevent P. falciparum infection, or they can be used to identify drug resistence in P. falciparum. Sequencing of the Plasmodium chromosome 2 and the subsequent identification of proteins encoded by it will help to expand our understanding of parasite biology, a process hampered by the complexity of the parasitic lifecycle, and provide new targets for vaccine and drug development. Parasite resistance to drugs and mosquito resistance to insecticides have led to a resurgence to fralatia in many parts of the world, and there is a pressing need for vaccines and new drugs. AAA70078 to AAA7027 and AAB18352 represent nucleotide and protein sequences given in the present invention, but which are not specifically mentioned within the
                                                                                                                                                                                                                                                                                                                                                                                                                 5042 Ataatattititiatgataatcatgataccaataataataataataataataataa 5101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S102 ATAATAATAATAATAATAATAATAATAATATATATCTCTTAAGAATAATAATAATAATA 5161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5221
                                                                                                                                                                                                                                                                                                                                                                            257 ATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGATAATAGTACATATGCTTCTC 316
                                                                                                                                                                                                                                                                                                                                                                                                                                                              376
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5222 aaaaaaaaatrigtatacaaaaaataaraataatatritgigaaagaaaaaatccaatatic 5281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      557 TTGATACAATAAAAATAACTATATTGTTTCAGATAGCAATGGATATTGGAATTGGAAAG 616
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  317 ACTITIAIGAICCGGAIACIGGAACAACAIAITATICCITITGCGAAACAIGCAAAGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            377 CAGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAAAATCCAAGATATGCAGCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       437 CATICITCIACTIAGGATTATCGCTTCATTATTTAGGAGATGTGAATCAGCCAATGCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               497 CAGCAAACTITACGAATCTTTCTTATCCAATGGGTTTCCATTCTAAATACGAAAATTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5282 ATAATAATAGTTCAAAGTACATTTTTAATACTGTGAGATTCTTTAAAAAAGATATTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Plasmodium falciparum chromosome 2 related DNA sequence SEQ ID NO:311.
                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                              Sequence 6033 BP; 3019 A; 437 C; 707 G; 1870 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                     Query Match

5.3%; Score 45.4; DB 3; Length 6033;
Best Local Similarity 45.2%; Pred. No. 0.29;
Matches 166; Conservative 0; Mismatches 201; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAA70178 standard; DNA; 3738 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAGAAAA 5408
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAGCAAA 623
                                                                                                                                                                                                                                 specification
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      07-NOV-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAA70178;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          윰
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
```

```
The present invention describes proteins and their fragments (I) encoded by chromosome 2 of the human malarial parasite, Plasmodium falciparum. Also described are: (I) nucleotide sequences (II) encoding (I); and (2) vaccines against P. falciparum infection comprising (I) or (II). (I) and polyclonal antisera or a monoclonal antibody raised to infection. (I) and polyclonal antisera or a monoclonal antibody raised to immunogens comprising the sequences of (I), are useful in the detection of infection with P. falciparum. Furthermore, (I) (especially when they are rifins or secreted or membrane proteins) can aid the identification of infection with P. falciparum infection, or they can be used to identify drug resistance in P. falciparum infection, or they can be used to identify drug resistance in P. falciparum. Sequencing of the concess hampered by the complexity of the parasite iffection of proteins concoded by it will help to expand our understanding of parasite biology, a process hampered by the complexity of the parasite resistance of malaria in many parts of the world, and these ls a pressing need for vaccines and new drugs. AAA70039 and AAB18144 to AAB18352 represent nucleotide and protein sequences given in the present conversed to many interpretation, but which are not specifically mentioned within the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2730 TAAGACAATGGAAAATAAACCGAACTTAACAAATAAAATTATGAATAATGACAATAT 2789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2790 TGATAATAATAATAATAATAATAATAACAATATTGATAATAATAATAATAATAATAATGG 2849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2850 igaiaarairiahahdandahcriaagaarariahringaaracirchararraaraa 2909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        312 ITCTCACTITITATGATCCGGATACTGGAACAACATATATTCCTTTTGCGAAACATGCAAA 371
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 252 AGAAAATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGATAATAGTACATATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          192 TAATACAACGATTGTGAATCCGAATGAAACTGCATTATTAAATGAGTGGCGTGCTGATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Plant; bacterial infection; fungal infection; viral infection; rice;
                                                                                                                                                                           Proteins encoded by chromosome 2 of the human malarial parasite, Plasmodium falciparum, useful as antimalarial vaccines and in the diagnosis of P.falciparum infection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 3738 BP; 1705 A; 258 C; 542 G; 1233 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 3; Length 3738;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 5.3%; Score 45.2; DB Best Local Similarity 51.5%; Pred. No. 0.28; Matches 104; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                Disclosure; Page 511; 577pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2910 AGACTTATATGTAAAACATTTT 2931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 372 AGAAACAGGCGCAAAATATTTT 393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADA71938 standard; DNA; 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Rice gene, SEQ ID 5263.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                specification
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Oryza sativa.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20-NOV-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADA71938;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 9
g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              원
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           쉱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SXXXXXXXXXXXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Plasmodium falciparum; chromosome 2; human malaria parasite; antimalaria; malaria; protozoacide; infection; insecticide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98US-0107131P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99WO-US026796
```

Plasmodium falciparum

WO200025728-A2

05-NOV-1999; 05-NOV-1998;

11-MAY-2000

(HOFF/) HOFFMAN S.

311

251

ö

```
Staphylococcus aureus DNA #30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             441
                                                                                                                                                                                                                                                                Claim 6;
                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                               The present invention relates to a method (M1) for identifying genes involved in plant resistance or response to pathogenic infection. M1 comprises identifying a gene whose expression is significantly altered in the incompatible interaction of plant gene expression relative to expression of the gene in an uninfected plant, in a mutant plant that does not express a gene associated with response to pathogenic infection, or in a corresponding incompatible or compatible interaction. (M1) is useful for conferring resistance to resistance or tolerance to a plant to bacterial, fungal or viral infection. The present sequence was used to illustrate the invention.
                                                                                                                                                               t t
                                                                                                                                                                                                                                                                                                                                                                                                             498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    678
                                                                                                                                                                                                                                                                                                                                                                                                                         844 RARKARYWWKWATWCATKRWMTKGKGAKWAWTWMAKAWRKYYWSWMRAWYYYYKTRRTRY 903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTTGTGAACGATACGACAAAAGATTGGTTTGTAAAAGCAGCCGTATCTCAAGAATATGCA 738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Identifying at least one gene involved in plant resistance or response pathogenic infection for conferring resistance or tolerance to a plant bacterial, fungal or viral infection by determining or detecting plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCAAACTTTACGAATCTTTCTTATCCAATGGGTTTCCATTCTAAATACGAAAATTTTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GATACAATAAAAATAACTATATTGTTTCAGATAGCAATGGATATTGGAATTGGAAAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCAAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCAGCTAAACAAGATTATCCTGGC
                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                      ö
                                                                                                                                                                                                                                                                                                                                                                                         4
                                                                                                             Hou Y;
                                                                                                                                                                                                                                                                                                                                                 Sequence 2000 BP; 336 A; 265 C; 284 G; 363 T; 0 U; 752 Other;
                                                                                                                                                                                                                                                                                                                                                                   5.3%; Score 45; DB 7; Length 2000; llarity 11.2%; Pred. No. 0.26; Conservative 166; Mismatches 131; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGWWAMYSYSWTRTYWMRTWRWWASSRTAKRMARMWK 1002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GATAAATGGCGTGCGGAAGTAACACCGGTGACAGGAAAG 777
                                                                                                            J, Goff
Xie Z,
                                                                                                            Glazebrook
Whitham S,
                                                                                                                                                                                                               Claim 27; SEQ ID NO 5263; 899pp; English.
                                                                                         (SYGN ) SYNGENTA PARTICIPATIONS AG
                                                22-JUN-2001; 2001WO-IB001105
                                                                    22-JUN-2001; 2001WO-IB001105
                                                                                                            κ'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA;
                                                                                                            Chen W, Co
                                                                                                                                         WPI; 2003-175290/17.
                                                                                                                                                                                                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACF72350 standard;
         WO2003000898-A1.
                                                                                                                                                                                             gene expression
                                                                                                                     ď
                                                                                                                                                                                                                                                                                                                                                                       he
Local S...
38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20-NOV-2003
                             03-JAN-2003
                                                                                                            Chang H,
Katagiri
                                                                                                                                                                                                                                                                                                                                                                                                                                                    499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     739
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACF72350;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    619
                                                                                                                                                                                                                                                                                                                                                                     Query Match
                                                                                                                                                                                                                                                                                                                                                                                                              443
                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACE72350
ID ACE7
XX
AC ACE7
XX
DT 20-18
a
                                                                                                                                                                                                                                                                                                                                                                                                                                                  ठ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
```

```
3330 IGCTATAAAAATAACGTCAACCTTTCTAAGTCTGAAAAGATAAATTGTTAGCTATTGC 3389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The invention relates to novel genes and encoded proteins from Staphylococcus aureus. A composition comprising the S. aureus protein, a nucleic acid encoding the protein, or an antibody to the protein, is useful as a pharmaceutical, particularly as a vaccine for treating or preventing infection due to Staphylococcus bacteria, specifically an infection caused by S. aureus. The composition is particularly useful for treating or preventing sepsis in a patient. The composition can also be used for diagnostics. The protein is also used in an assay for enzymatic studies and as a target for antibiotics. This sequence represents one of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGAAAAAGCAAGAAAAAGAAAAAAAAAAGAAGTGGATAAAGCAGTATGAAGATGATGTCAT 3329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3390 TGATCAAAGACATAAGGATGAAGTAAGAAAGGCAAAATCTAAAAAAGATGCTGTAGTAGA 3449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTATGATCCGGATACTGGAACAACATATATTCCTTTTGCGAAACATGCAAAAGAAACAGG 380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein, useful as a vaccine for treating or infection, specifically an infection caused
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rgargercagaritcagaaaargaaagaaagaaaritgaaaagcrigaaaarcaaagacg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3150 TGACATCACTGTTAAAGAATTGAGTAAGACTGAAAAAGAGCAAGAGCGTATTTTAGTAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AATGCAAAGAAACAGAAATGCTTATTCAATAGACGAAGCGAGCAAAGCAATTAAAGAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAACTTTACGAATCTTTCTTATCCAATGGGTTTCCATTCTAAATACGAAAATTTTGTTGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                621 AAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCAGCTAAACAAGATTATCCTGGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TACAATAAAAATAACTATATTGTTTCAGATAGCAATGGATATTGGAATTGGAAAGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
   gene therapy; infection; sepsis; diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 6222 BP; 2355 A; 883 C; 1376 G; 1608 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 6222;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3450 CGTTGTTAAAAGCAAATAAAGATATTGATAAAGAA 3486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     221;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGTGAACGATACGACAAAGATTGGTTTGTAAAAGCA
Antibacterial; vaccine; gene therapy; infectienzymatic assay; antibiotic target; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.94;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  aureus genes of the invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 43.4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQ ID NO 59; 49pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Scarselli
                                                                                                                                                                                                                                                                               27-MAR-2002; 2002WO-IB002637.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5.1%;
                                                                                                                                                                                                                                                                                                                                        27-MAR-2001; 2001GB-00007661
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 New Staphylococcus aureus
preventing Staphylococcal
S. aureus, e.g. sepsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches 176; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Masignani V, Mora M,
                                                                                            Staphylococcus aureus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2003-120786/11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                    (CHIR-) CHIRON SPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P-PSDB; ABM70790
                                                                                                                                                     WO200294868-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            novel S.
                                                                                                                                                                                                                  28-NOV-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   561
```

ö

DNA; 837 BP.

ADC21339 standard,

œ

```
The invention relates to novel genes and encoded proteins from Staphylococcus aureus. A composition comprising the S. aureus protein, a nucleic acid encoding the protein, or an antibody to the protein, is useful as a pharmaceutical, particularly as a vaccine for treating or preventing infection due to Staphylococcus bacteria, specifically an infection caused by S. aureus. The composition is particularly useful for treating or preventing sepsis in a patient. The composition can also be used for diagnostics. The protein is also used in an assay for enzymatic studies and as a target for antiblotics. This sequence represents one of the novel S. aureus genes of the invention
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           403 GOTCAAGCATACCAAAATCAAGATATGCAGCAAGCATTCTTCTACTTAGGATTATCGCTT 462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 760 aditaticacardaaadcricarraaaacrircricaarriatcaacataricaarga 701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cerradeardedaecaccaardegarrrearrireardarcrecraradarreaggarrir 641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein, useful as a vaccine for treating or
infection, specifically an infection caused by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    820 GGCCAATCGCACCTTGACCAGTATGTGCAGAAATAACTGGTGGTAGTTACATTTATATCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCAATGGGTTTCCATTCTAAATAACTATTTGTTGATACAATAAAAATAACTATATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                               Antibacterial; vaccine; gene therapy; infection; sepsis; diagnosis; ensymatic assay; antibiotic target; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match 5.1%; Score 43.2; DB 7; Length 837; Best Local Similarity 50.5%; Pred. No. 0.58; Matches 105; Conservative 0; Mismatches 103; Indels (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 837 BP, 314 A; 116 C; 149 G; 258 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          583 GTTTCAGATAGCAATGGATATTGGAATT 610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 6; SEQ ID NO 4523; 49pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scarselli
                                                                                                                                                                                                                                         Staphylococcus aureus DNA #2262.
                               582/c
ACF74582 standard; DNA; 837 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            27-MAR-2002; 2002WO-IB002637.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27-MAR-2001; 2001GB-00007661
                                                                                                                                                                         20-NOV-2003 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     New Staphylococcus aureus
preventing Staphylococcal
S. aureus, e.g. sepsis.
                                                                                                                                                                                                                                                                                                                                                                                            Staphylococcus aureus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Masignani V, Mora M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 2003-120786/11.
P-PSDB; ABM73022.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (CHIR-) CHIRON SPA
                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO200294868-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28-NOV-2002.
                                                                                                               ACF74582;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    700
RESULT
```

```
The invention relates to methods of identifying an agent that binds a polypeptide from Staphylococcus aureus by contacting a polypeptide and an agent to form a mixture and determining whether the agent binds the polypeptide. The method is useful in identifying agents that bind gene products critical for the survival of microbes, preferably staphylococcus microbes, including agents that interfere with the function of such groducts. The method is used to identify new agents useful for treating products. The method is used to identify new agents useful for treating or preventing bacterial infections, particularly those caused by antibiotic-resistant bacteria. This sequence represents the coding region for a protein from Staphylococcus aureus of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Identifying an agent that binds a polypeptide and useful for treating or preventing staphylococcal infections, comprises contacting a polypeptide and an agent to form a mixture and determining whether the agent binds the polypeptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          403 GGTCAAGCATACCAAAATCAAGATATGCAGCAAGCATTCTTCTACTTAGGATTATCGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           820 GGCCAATCGCACCTTGACCAGTATGTGCAGAATAACTGGTGTAGTTACATTTATATCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           760 AATTATTCACATGAAAAGCTTCATTAAAAACTTTCTTCAATTATCAACATATTCAATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           700 CGTTAGCATGTGCGACACCAATGGATTTGATTTCATGATCTCCTATAAATTCAGCAATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                               Staphylococcus aureus protein coding sequence SEQ ID NO: 21.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
5.1%; Score 43.2; DB 9; Length 837;
Best Local Similarity 50.5%; Pred. No. 0.58;
Matches 105; Conservative 0; Mismatches 103; Indels (
                                                                                                                                 ds; gene; antibacterial; gene therapy; vaccine; diagnosis; microbial survival; gene function; bacterial infection; antibiotic-resistant bacterium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 837 BP; 314 A; 116 C; 149 G; 258 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Harris DW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mott JE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            583 GTTTCAGATAGCAATGGATATTGGAATT 610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           640 CCTTTTCAAGTATTGGATACTAGAATT 613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Example 1; SEQ ID NO 21; 174pp; English.
                                                                                                                                                                                                                                      Location/Qualifiers
1..837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Arvidson S,
                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                   28-SEP-2001; 2001WO-US030379.
                                                                                                                                                                                                                                                                                                                                                                                                   28-SEP-2001; 2001WO-US030379
                                                                                                                                                                                                                                                                                                                                                                                                                                   (PHAA ) PHARMACIA & UPJOHN
                                                                 (first entry)
                                                                                                                                                                                                                                                                       /*tag= a
                                                                                                                                                                                                  Staphylococcus aureus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Quinn CL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 2003-372002/35.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      P-PSDB; ADC21340
                                                                                                                                                                                                                                                                                                    WO2003029484-A2
                                                                 18-DEC-2003
                                                                                                                                                                                                                                                                                                                                     10-APR-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Tomich CC,
                                 ADC21339;
                                                                                                                                                                                                                                    Key
ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     임
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
```

ô

462 761 641

CCTTTTTCAAGTATTGGATACTAGAATT 613

640

ઠે 셤 ઠે g ઠે 유 ઠે RESULT 12 ADC21339/c

582

701

```
The invention discloses a method for identifying an agent that binds a polypeptide which comprises mixing a polypeptide and an agent to form a mixture and determining whether the agent binds the polypeptide. Also claimed is a method for identifying an agent that decreases the growth rate of a microbe, making a Staphylococcus aureus with reduced virulence, which comprises altering a coding sequence in an S. aureus to introduce a mutation, a vaccine composition comprising the S. aureus or introduce a mutation, a vaccine composition comprising the S. aureus to introduce a caucaction, a vaccine composition comprising the S. aureus or answer that reduced virulence. The methods are useful for identifying an agent that reduced virulence. The methods are useful for identifying an agent that infections, particularly those caused by antibiotic-resistant bacterial, infections, particularly bacteraemia, septic shock and serious metastatic infections wirtually any organ, skin rashes, food poisoning or multisystem dysfunction, i.e. toxic shock syndrome. The inventive method identifies agents that are unrelated to existing antimicrobials and that target different aspects of staphylococcal invasion of and replication in the host. The sequence presented is a DNA sequence encoding one of the S. aureus polypeptides of the invention.
                                                                                                                                                      Binding agent, growth rate; microbe; virulence; vaccine; bacterial infection; antibiotic-resistant bacteria; bacteraemia; becterial septic shock; metastatic infection; endocarditis; arthritis; osteomyelitis; pneumonia; abscess; skin rash; food poisoning; multisystem dysfunction; toxic shock syndrome; antimicrobial; antibacterial; immunosuppressive; cytostatic; antiinflammatory; gene; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Identification of agent that binds polypeptide, for treating bacterial infections, particularly caused by antiblotic-resistant bacteria, involves mixing polypeptide and agent, and determining whether agent binds polypeptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5.1%; Score 43.2; DB 9; Length 837; 50.5%; Pred. No. 0.58; ive 0; Mismatches 103; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 837 BP; 314 A; 116 C; 149 G; 258 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ŭ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Harris
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mott JE,
                                                                                                                    S. aureus polypeptide #11.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 49; SEQ ID NO 21; 122pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Arvidson S,
ADC25025 standard; DNA; 837 BP.
                                                                                                                                                                                                                                                                                                                                                                                                                              28-SEP-2001; 2001US-00966521
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      28-SEP-2001; 2001US-00966521
                                                                            (first entry)
                                                                                                                                                                                                                                                                                                       Staphylococcus aureus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Tomich CC, Quinn CL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TOMICH C C.
QUINN C L.
ARVIDSON S.
MOTT J E.
HARRIS D W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2003-606127/57.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   P-PSDB; ADC25026
                                                                                                                                                                                                                                                                                                                                             US2003087321-A1.
                                                                                                                  DNA encoding
                                                                                                                                                                                                                                                                                                                                                                                       08-MAY-2003.
                                                                            18-DEC-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
                                    ADC25025;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (QUIN/) (ARVI/) (MOTT/) N (HARR/) F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (/IWOI)
```

```
aureus comprising one of the seventeen nucleotide sequences fully disclosed in the specification. The invention is used to find agents that bind gene products critical for the survival of microbes, particularly Staphylococcus aureus and are therefore useful to treat bacterial infections particularly those caused by antibiotic-resistant bacteria. This is the polynucleotide sequence of an unknown coding region from the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           761
                                                          701
                                                                                      582
                                                                                                                     700 CGTTAGCATGTGCGACACCAATGGATTTGATTTCATGATCTCCTATAAATTCAGCAATTT 641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             New Staphylococcus aureus polynucleotides useful to find agents that bind
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CATTATTTAGGAGATGTGAATCAGCCAATGCATGCAGCAAACTTTACGAATCTTTAT 522
820 GGCCAATCGCACCTTGACCAGTATGTGCAGAAATAACTGGTGTAGTTACATTTATATCGT 761
                                            CCAATGGGTTTCCATTCTAAATACGAAAATTTTTGTTGATACAATAAAAATAACTATATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           820 Geccharcecacerreaceagrarerecagaharaheregrerigiherriaharen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGTCAAGCATACCAAAATCAAGATATGCAGCAAGCATTCTTCTACTTAGGATTATCGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The invention describes isolated polynucleotides from Staphylococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene products critical for the survival of microbes, particularly aureus, to treat bacterial infections particularly by antibiotic-resistant bacteria.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 9; Length 837;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 837 BP; 314 A; 116 C; 149 G; 258 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                         Staphylococcus aureus; microbe survival; infection; antibiotic-resistant bacteria; critical coding sequence;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Harris DW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               103;
                                                                                                                                                                                                                                                                                                                                                            Staphylococcus aureus unknown coding region #11.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mott JE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pred. No. 0.58
0; Mismatches
                                                                                                                                                    610
                                                                                                                                                                                   613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5.1%; Score 43.2; 50.5%; Pred. No. 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 19; SEQ ID NO 21; 122pp; English.
                                                                                                                                                    583 GTTTCAGATAGCAATGGATATTGGAATT
                                                                                                                                                                                  640 ccrirrrcaagrarregaracragaarr
                                                                                                                                                                                                                                                                                                                                                                                                                        essential coding sequence; gene; ds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Arvidson S,
                                                                                                                                                                                                                                                                ВР
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (PHAA ) PHARMACIA & UPJOHN CO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   02-MAY-2003; 2003US-00429094.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28-SEP-2001; 2001US-00966521.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Staphylococcus aureus genome.
                                                                                                                                                                                                                                                               ADD52527 standard; DNA; 837
                                                                                                                                                                                                                                                                                                                             (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches 105; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Staphylococcus aureus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Quinn CL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WPI; 2003-830987/77.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US2003180821-A1.
                                                                                                                                                                                                                                                                                                                             15-JAN-2004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       25-SEP-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Tomich CC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                403
                                                                                      523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            463
                                                                                                                                                                                                                                                                                              ADD52527
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local
                                                                                                                                                                                                                                              ADD52527/c
ID ADD52
                                                                                                                                                                                                                                 RESULT
                                                       g
                                                                                                                    셤
                                                                                                                                                    8
                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                           Š
                                                                                   ठे
```

ö

Gaps ö

ö

Matches 105; Conservative

Similarity

760 AATTATTCACATGAAAAGCTTCATTAAAAACTTTCTTCAATTTATCAACATATTCAATGA 701

```
The present invention describes proteins and their fragments (I) encoded by chromosome 2 of the human malarial parasite, Plasmodium falciparum. Also described are: (I) nucleotide sequences (II) encoding (I); and (2) vaccines against P. falciparum infection comprising (I) or (II). (I) and (II) and polyclonal antibody raised to infection. (I) and polyclonal antibody raised to immunogens comprising the sequences of (I), are useful in the detection of infection with P. falciparum. Furthermore, (I) (especially when they are rishins or secreted or membrane proteins) can aid the identification of drugs to treat or prevent P. falciparum infection, or they can be used to identify drug resistance in P. falciparum. Sequencing of the condend by it will help to expand our understanding of parasite biology, a process hampered by the complexity of the parasitic lifecycle, and provide new targets for vaccine and drug development. Parasite resistance to drugs and mosquito resistance to insecticides have led to a resurgence of malaria in many parts of the world, and there is a pressing need for vaccines and new drugs. AAA7078 to AAA70287 and AAB18144 to AAB18352 cepresent nucleotide and protein sequences given in the present invention, but which are not specifically mentioned within the
                                        641
   cerradeargradaacaccaargaarrrgarrrcardarcrccraraaarrcagcaarrr
                                                                                                                                                                                                                                                                                                    Plasmodium falciparum chromosome 2 related DNA sequence SEQ ID NO:353
                                                                                                                                                                                                                                                                                                                                   Plasmodium falciparum, chromosome 2; human malaria parasite; vaccine; antimalarial; malaria; protozoacide; infection; insecticide; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Proteins encoded by chromosome 2 of the human malarial parasite, Plasmodium falciparum, useful as antimalarial vaccines and in the diagnosis of P.falciparum infection.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 2700 BP; 1152 A; 270 C; 390 G; 888 T; 0 U; 0 Other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Venter JC;
                                                                     GTTTCAGATAGCAATGGATATTGGAATT 610
                                                                                           640 CCTTTTTCAAGTATTGGATACTAGAATT 613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Disclosure, Page 542-543, 577pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gardner M,
                                                                                                                                                                                             AAA70220 standard; DNA; 2700 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99WO-US026796.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98US-0107131P.
                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hoffman S, Carucci D,
                                                                                                                                                                                                                                                                                                                                                                                    Plasmodium falciparum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WPI, 2000-365347/31.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HOFFMAN S.
CARUCCI D.
GARDNER M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VENT/) VENTER J C.
                                                                                                                                                                                                                                                                                                                                                                                                                          WO200025728-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              05-NOV-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 05-NOV-1998;
                                                                                                                                                                                                                                                               07-NOV-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                           11-MAY-2000
   523
                                      200
                                                                       583
                                                                                                                                                                                                                              AAA70220;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (HOFF/)
(CARU/)
(GARD/)
                                                                                                                                                                           ò
                                  გ
                                                                     ò
                                                                                                  셤
```

```
ñ
                                                                                  251
                                                                                                                                                               311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   653
                                                                                                                      294 itricataggataaataatratgaagaagaagaagataataagataataatgatga 353
                                                                                                                                                                                                     366
                                                                                                                                                                                                                                                                                   414 TAATAACAATGATGATAATAATGATGATGATGAGAAGATGTTGACGATTTTGAAGATAT 473
                                                                                                                                                                                                                                                                                                                           367 GCAAAAGAAACAGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAAAATCAAGAT 426
                                                                                                                                                                                                                                                                                                                                                                  474 AAAAGAAAHGAAGATATAAAGATCCTACTTATTCAGATATCTATAAAGAAGCAAAAA 533
                                                                                                                                                                                                                                                                                                                                                                                                            485
                                                                                                                                                                                                                                                                                                                                                                                                                                                  593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       546 CGAAAATTTTGTTGATACAATAAAAATAACTATATTGTTTCAGATAGCAATGGATATTG 605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               654 AAGTTGTTCTGAGGAATCAGATAAGAATCAGATAAAGAATCAGATAAAGATGAAATTT 713
                                                                                192 TAATACAACGATTGTGAATCCGAATGAAACTGCATTATTAAATGAGTGGCGTGCTGATTT
                                                                                                                                                               252 AGAAAATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGATAATAGTACATATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                            534 ATGCAATATACGTTGTGAAAATATTATGAACAGTTCGGTTAATAAGAAGAATTTAGAAGA
                                                                                                                                                                                                                                             TTCTCACTTTTATGATCCGGATACTG-----GAACAACATATATTCCTTTTTGCGAAACAT
                                                                                                                                                                                                                                                                                                                                                                                                            427 ATGCAGCAAGCATTCTTCTACTTAGGATTATCGCTTCATTATTTAGGAGATGTGA-ATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          486 GCCAATGCAGCAACTTTACGAATCTTTCTTATCCAATGGGTTTCCATTCTAAATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 594 AATAAATGAATCGGATCCCCTGAACAGTTCAGATAATAGTATGACTTCATCATCAGAAGA
                                          Gaps
                                          9
    DB 3; Length 2700;
                                          Indels
Query Match 5.1%; Score 43.2; DB 3; 3
Best Local Similarity 47.2%; Pred. No. 0.82;
Matches 200; Conservative 0; Mismatches 218;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Search completed: August 2, 2004, 02:22:00 Job time : 436 secs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       606 GAAT 609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             714 ATAT 717
                                                                                                                                                                                                                                           312
                                                                                  ð
                                                                                                                  g
                                                                                                                                                                                              g
                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                 윱
                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

```
US-08-232-463-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
1, Appli
37, Appl
2813, Ap
1, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2, Appli
2, Appli
2, Appli
2, Appli
2, Appli
73, Appli
73, Appl
                                                                      August 2, 2004, 02:02:34; Search time 87 Seconds (without alignments) 5415.555 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 14, Appl
Sequence 9, Appli
                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 199
Sequence 1, 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Description
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 2
Sequence 2
Sequence 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 7
Sequence 7
Sequence 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence Sequence S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                         1 atgaaaaagaaagtattagc......atacgtatgtaaatcgctaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                               Issued Patents NA:*

(cgn2_6/ptodata/2/ina/5A_COMB.seq:*
(cgn2_6/ptodata/2/ina/6A_COMB.seq:*
(cgn2_6/ptodata/2/ina/6A_COMB.seq:*
(cgn2_6/ptodata/2/ina/6B_COMB.seq:*
(cgn2_6/ptodata/2/ina/RECOMB.seq:*
(cgn2_6/ptodata/2/ina/RECTUS_COMB.seq:*
(cgn2_6/ptodata/2/ina/RECTUS_COMB.seq:*
         GenCore version 5.1.6
Copyright (c) 1993 - 2004 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-956-171E-130
US-09-543-681A-455
US-08-961-227-199
US-08-741-538A-1
US-08-725-518-1
US-09-601-198-37
US-09-901-98-37
US-09-96-2813
US-09-96-2813
US-09-96-1083-67
US-09-56-09-1083-67
US-09-56-09-1083-67
US-08-920-812-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5-09-338-907-73
5-09-218-207-73
5-09-338-907-183
5-09-218-207-183
5-09-976-594-125
3-09-134-001C-973
                                                                                                                                                                                                              Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S-606-595-60-SD
                                                                                                                                                                                            682709 segs, 277475446 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUMMARIES
                                                                                                                                                                                                                                                                   Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                 nucleic search, using sw model
                                                                                                                                                                      Gapop 10.0 , Gapext 1.0
                                                                                                                                                                                                                                      seq length: 0
seq length: 2000000000
                                                                                                          PCT-US03-12556-1
849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1872 / 2911
1113
1113
1353
640681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query
Match Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           352
10207
10207
10207
10207
115766
115766
37950
37950
2172
2172
2172
5050
5128
                                                                                                                                                             IDENTITY NUC
                                                                                                                                                             Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Perfect score:
                                                                                                                                                                                                                                      Minimum DB
Maximum DB
                                                  OM nucleic
                                                                                                                                         Sequence:
                                                                        Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Result
No.
```

```
Sequence 2011, Ap Sequence 178, App Sequence 185, App Sequence 3, Appli Sequence 5, Appli Sequence 5, Appli Sequence 200, App Sequence 120, Appli Sequence 179, Appli Sequence 1, Appli Sequence 1, Appli Sequence 1, Appli Sequence 1, Appli Sequence 2, Appli Sequence 2, Appli Sequence 2, Appli Sequence 2, Appli Sequence 2, Appli Sequence 2, Appli Sequence 2, Appli Sequence 2, Appli Sequence 2, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY: USA
ZIP: 22313-0299
COMPUTER READABLE FORM:
MEDIUM TYPE: Flopy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/232,463
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
APPLICANT: DORNER, F.
APPLICANT: SCHEIFLINGER, F.
APPLICANT: FALKNER, F. G.
TITLE OF INVENTION: RECOMBINANT FOWLPOX VIRUS
NUMBER OF SEQUENCES: 5.2
CORRESPONDENCE ADDRESS:
ADDRESSEE: Foley & Lardner
STREET: 1800 Diagonal Road, Suite 500
CITY: Alexandria
                   US-09-601-198-178
US-09-134-001C-1835
US-08-134-479A-3
US-08-914-479A-3
US-08-914-479A-3
US-08-914-479A-3
US-08-914-479A-3
US-08-914-479A-3
US-08-914-479A-3
US-08-918-1000C-2179
US-09-134-000C-2179
US-09-134-001C-1054
US-09-134-001C-1054
US-09-134-001C-1054
US-09-134-001C-1054
US-09-134-001C-1054
US-09-762-724-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/07/935,313
FILING DATE:
APPLICATION NUMBER: EP 91 114 300.6
FILING DATE: 26-AUG-1991
ATTORNEY/AGENT INFORMATION:
NAME: BENTY Stephen A.
REGISTRATION NUMBER: 29,768
REFERENCE/DOCKET NUMBER: 29,768
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
TELECHONE: (703)836-9300
TELEFAX: (703)836-9300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-232-463-14/c
; Sequence 14, Application US/08232463
; Patent No. 5670367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAA: , 189149
TELEX: 899149
INFORMATION FOR SEQ ID NO: 14: SEQUENCE CHARACTERISTICS: , 17218 base pairs
                     1269
579
765
859
1332
1617
44594
7172
7172
1664976
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pTZgpt-F18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
```

5.6%; Score 47.4; DB 1; Length 7218;

```
/evidence= EXPERIMENTAL
/gene= "ORF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME: Mark J. Hyman
REGISTRATION NUMBER: 46,789
REFERENCE/DOCKET NUMBER: PB248P1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:

APPLICATION NUMBER: 60/009,861
FILING DATE: January 5, 1996
APPLICATION NUMBER: 08/781,986
FILING DATE: January 3, 1997
ATTORNEY/AGENT INFORMATION:
                                                             standard name=
                                                                                                     /label= r-llaBI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ; Sequence 470, Application US/08956171E; Patent No. 6593114; GENERAL INFORMATION:
                                                                                     endonuclease"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEPHONE: (240) 314-1224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gil H. Choi
Patrick S. Dillon
                                           /number=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Charles Kunsch
Gil H. Choi
                                                                                                                                                           5.5%;
                                                                                                                                                                         Best Local Similarity 47.73
Matches 136, Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CITY: Rockville
STATE: Maryland
COUNTRY: USA
                     OTHER INFORMATION:
OTHER INFORMATION:
OTHER INFORMATION:
OTHER INFORMATION:
     OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-956-171E-470
                                                                                                         ;
US-08-913-159-9
                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 3
                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                쉽
                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: Plasmid-derived type II

TITLE OF INVENTION: restriction-modification systems from Lactococcus lactis
NUMBER OF SEQUENCES: 14

NUMBER OF SEQUENCES: 14

MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30 (EPO)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/913,159
                                                                                   ö
                                                                                                                                                                                                                                  541 AAATACGAAAATTTTGTTGATACAATAAAAATAACTATATTGTTTCAGATAGCAATGGA 600
                                                                                                                                   601 TATTGGAATTGGAAAGGAGCAAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCAGCT 660
                                                                                                                                                                                                            661 AAACAAGATTATCCTGGCGTTGTGAACGATACGACAAAAGATTGGTTTGTAAAAGCAGCC 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /standard_name= "Gene coding for LlaBI methylase" /label= m-llaBI
                                                                                                                                                                                                                                                                                      721 GTATCTCAAGAATATGCAGATAAATGGCGTGCGGAAGTAACACCGGTGACAGGAAAGCGT
                       Gaps
                     ;
0
                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCATION: 2464..3360
DENTIFICATION METHOD: experimental
OTHER INFORMATION: /codon start= 2464
OTHER INFORMATION: /product= "LlaB! endonuclease"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HOD: experimental
/codon_start= 422
/product= "LlaBI methylase"
/evidence= EXPBRIMENTAL
/gene= "ORF"
Best Local Similarity 4.7%; Pred. No. 0.0033; Matches 12; Conservative 151; Mismatches 92;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORIGINAL SOURCE:
ORGANISM: Lactococcue lactis subsp. cremoris
STRAIN: WS6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: DK 0179/95
FILING DATE: 17-FEB-1995
INFORMATION FOR SEQ ID NO: 9:
SEQUENCE CHARACTERISTICS:
LENGTH: 3706 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
TYPE: nucleic acid
STRANDEDNESS: double
TYPE: DVACCOURTINESS: DVACCOURTINESS: DVACCOURTINESS: DVACCOURTINESS: DVACCOURTINESS: NO
ANTI-SENSE: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement (422..2161)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 9, Application US/08913159
Patent No. 6300109
GENERAL INFORMATION:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                          213 RRRRRRRRRRR 1199
                                                                                                                                                                                                                                                                                                                                                                  781 TTAATGGAAGCGCAG 795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCATION: complement (4 IDENTIFICATION METHOD: OTHER INFORMATION: /cod OTHER INFORMATION: /per OTHER INFORMATION: /gen OTHER INFORMATION: /gen OTHER INFORMATION: /gen OTHER INFORMATION: /gen OTHER INFORMATION: /gen OTHER INFORMATION: /lab
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY: CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 2
US-08-913-159-9/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURE:
NAME/KEY:
                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                        용
                                                                                           셤
                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                    È
                                                                                                                                                                                                                                                                                                                                                                Š
                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                              셤
```

```
Craig A. Rosen
Steven C. Barash
Michael R. Fannon
TITLE OF INVENTION: Staphylococcus aureus Polynucleotides and Sequences
NUMBER OF SEQUENCES: 5256
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                 111 ATGGTCAGCTGAGGATAAAGCATAATGAGGGGATTAACTCTCATTTTGTGGATTTGTAAATCG 170
                                                                                                                                                                                                                                                                                                                                       1010 ATTTAATCGAATAATATATCCTTATGAAAATATGAACGGCAATGCTGTACCAATCAGCAT 951
                                                                                                                                                                                                                                                                                                                                                                                                                                                               950 TGTCTCAATGAAGAAAATTCCCTAATACTTTAAATTATTTTATTGCTATTAAAGACGA 891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   231 AAAIGAGIGGCGIGCIGAITIAGAAAAIGGIAITIAITCIGCIGAITACGAGAAICCITA 290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 830 TCAAGCATTGAATAGCCATGTACCTAAAATAATTTTTCCTACAAATTCTTTGAATCCAAA 771
                                                                                                                                                                                                                                                                         51 AGTTCAAAGTGTAGTATTTGCACAAACAATAATAGTGAAAGTCCTGCACCGATTTTAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         171 TGCAATTGACATCATGTCTCGTAATACAACGATTGTGAATCCGAATGAAACTGCATTATT
                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                     ö
                                                                                                                                                 Score 46.6; DB 4; Length 3706;
Pred. No. 0.0041;
0; Mismatches 149; Indels 0
"Gene coding for LlaBI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            291 TTATGATAATAGTACATATGCTTCTCACTTTTATGATCCGGATAC 335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   770 cirigialairitadaaitaigcicirititaataatggalaigc 726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.50 inch, 1.4Mb storage COMPUTER: HP Vectra 486/33
OPERATING SYSTEM: MSDOS version 6.2
SOFTWARE: ASTI Text
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/956,171E
FILING DATE: 20-OCE-1997
CLASSIFICATION: <UNKNOWN>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE: Human Genome Sciences,
STREET: 9410 Key West Avenue
```

```
GENERAL INFORMATION:

APPLICANT: Charles Kunsch
Gil H. Choi
Patrick S. Dillon
Craig A. Rosen
Steven C. Barash
Michael R. Fannon
TITLE OF INVENTION: Staphylococcus aureus Polynucleotides and Sequences
NUMBER OF SEQUENCES: 5256
CORRESPONDENCE ADDRESS:
ADDRESSEE: Human Genome Sciences, Inc.
STREET: 9410 Key West Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4522
                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                              4223 TGATGGTCAGATTTCAGAAAATGAAAAAAAAAAATTGAAAAGCTTGAAAATCAAAGACG 4282
                                                                                                                                                                                                                                                                                                                                                                                                             4283 TGACATCACTGTTAAAGAATTGAGTAAGACTGAAAAAGAGCGAAGAGCGTATTTTAGTAAG 4342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4343 AATGCAAAGAAACAGAAATGCTTATTCAATAGACGAAGCGAGCAAAGCAATTAAAGGAAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4403 AGAAAAAGCAAGAAAAGCAAGAAAAAAAAAGAAGTGGATAAAGCAGTATGAAGATGTGATGTCAT 4462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4523 TGATCAAAGACATAAGGATGAAGTAAGAAAGGCAAAATCTAAAAAAGGTGCTGTAGTAGTAG 4582
                                                                                                                                                                                                                                                                                        321 TTATGATCCGGATACTGGAACAACATATTTCCTTTTGCGAAACATGCAAAAGAAACAGG 380
                                                                                                                                                                                                                                                                                                                                                                                                                                                        500
                                                                                                                                                                                                                                                                                                                                                                       AAACTITIACGAATCITITCITATCCAATGGGITITCCAITCIAAAIACGAAAATTITGITGA 560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        621 AAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCAGCTAAACAAGATTATCCTGGCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                        TACAATAAAAATAACTATATTGTTTCAGATAGCAATGGATATTGGAATTGGAAAGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGCTATAAAAATAACGTCAACCTTTCTAAGTCTGAAAAAGATAAATTGTTAGCTATTGC
                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                      Score 43.4; DB 4; Length 9821;
Pred. No. 0.046;
0; Mismatches 221; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDIUM TYPE: Diskette, 3.50 inch, 1.4Mb storage COMPUTER: HP Vectra 486/33 OPERATING SYSTEM: MSDOS version 6.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1583 CGTTGTTAAAAGCAAATAAAGATATTGATAAAGAA 4619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         681 TGTGAACGATACGACAAAGATTGGTTTGTAAAAGCA 717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFTWARE: ASCII Text
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/956,171E
FILING DATE: 20-Oct-1997
CLASSIFTCATION - UNKNOWN>
PRIOR APPLICATION DATA:
                                                                    TYPE: nucleic acid

STRANDEDNESS: double

TOPOLOGY: linear

SEQUENCE DESCRIPTION: SEQ ID NO: 470:
US-08-956-171E-470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INFORMATION FOR SEQ ID NO: 470:
SEQUENCE CHARACTERISTICS:
LENGTH: 9821 base pairs
                                                                                                                                                                                                      / Match 5.1%;
Local Similarity 44.3%;
les 176; Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STATE: Maryland COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          501
                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                          Best Loca
Matches
                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        g
                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                       ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
```

```
GENERAL INFORMATION:
APPLICANT: GARY BERTON:
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO PROTEUS MIRABIL.
TITLE OF INVENTION: DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: 2709-1002-001
CURRENT APPLICATION NUMBER: US/09/543,681A
CURRENT FILING DATE: 2000-04-05
PRIOR APPLICATION NUMBER: US 60/128,706
PRIOR APPLICATION NUMBER: US 60/128,706
NUMBER OF SEQ ID NOS: 8344
SEQ ID NO 455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5093
                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5092 aatratrcacargaaagcricarraaaacrircricarraararararararararga 5033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5032 cerradcarcieceacaccaarecarrrearircarcarcreraraarricacearrr 4973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1612 TTACTGCTGTTTGAGAGAAAGATAAAGAAAGAACAAAGTATTCACCTTGTTTTAAA 1671
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5152 ĠĠĊĊĄATĊĠĊĄĊĊŢŢĠĄĊĊĄGŢĄŢĠŢĠĊĄĠĄĄAŢĄĄĊŢĠĠŢĠŢĄĠŢŢĄĊĄŢŢĄŢĄŢĄŢ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCAATGGGTTTCCATTCTAAATACGAAAATTTTTGTTGATACAATAAAAAATAACTATATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CATACCAAAATCAAGATATGCAGCAAGCATTCTTCTACTTAGGATTATCGCTTCATTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTCCTTTTGCGAAACATGCAAAAGAACAGGCGCAAAATATTTAACCTTGCTGGTCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .
0
                                                                                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                                                        DB 4; Length 5924;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 1872;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 42; DB 4; Length 187
Pred. No. 0.057;
0; Mismatches 135; Indels
                                                                                                                                                                                                                                                                                                                                                                           5.1%; Score
50.5%; Pred. No. 0.0*2,
... 0; Mismatches 103;
FILING DATE: January 5, 1996
APPLICATION NUMBER: 08/781,986
FILING DATE: January 3, 1997
ATTORNEY/AGENT INPORMATION:
NAME: Mark J. Hyman
REGISTRATION NUMBER: 46,789
REFERENCE/DOCKET NUMBER: PB248P1
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4972 CCTTTTTCAAGTATTGGATACTMGAATT 4945
                                                                                                                                                                                                                                                                                                      TOPOLOGY: linear
SEQUENCE DESCRIPTION: SEQ ID NO: 130:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   583 GTTTCAGATAGCAATGGATATTGGAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; Sequence 455, Application US/09543681A; Patent No. 6605709
                                                                                                                                                               TELEPHONE: (240) 314-1224
                                                                                                                                                                          TELEFAX: (301) 309-8439
INFORMATION FOR SEQ ID NO: 130:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                           LENGTH: 5924 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; ORGANISM: Proteus mirabilis US-09-543-681A-455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity 47.7
Matches 123; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity 50.5
Matches 105; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-543-681A-455
                                                                                                                                                                                                                                                                                                                                                  US-08-956-171E-130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ENGTH: 1872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           410
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               320
                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠ
```

```
284 ATAAACCTACTTTTGATGTATGGAAAAAGGAAAGATAACCCACAAGTAAACCATAGTCAAT 343
                                                                     452 GAITAICGCTICAFTATITAGGAGATGTGAATCAGCCAATGCATGCAGAAACTTTACGA 511
                                                                                                         344 TAAATGAAAGTCACAGAAAAGAGGATTTACAAAGAGAAGAAGATTCACAAAAATCTGATT 403
                                                                                                                                                512 ATCITICITAȚCCAAIGGGTTICCAȚICIAAAIACGAAAAȚITITGTIGAȚACAATAAAA 571
                                                                                                                                                                                     404 caaciaaggaigtrakggciacagricrigaraaaakaairaicagiagiaairaakcaacra 463
                                                                                                                                                                                                                                                                                                                                                                    Sequence 1, Application US/08341538A
Patent No. 5817317
GENERAL INFORMATION:
APPLICANT: TITRALL DR, RICHARD W
APPLICANT: WILLIAMSON DR, ETHEL D
TITLE OF INVENTION:
TITLE OF SEQUENCES:
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
PRILITALION NUMBER: US/08/341,538A
FILING DATE: 28-NOV-1994
CLASSIPICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADDRESSE: NIXON & VANDERHYE
STREET: 8th FLOOR, 1100 NORTH GLEBE ROAD
CITY: ALLINGTON
STATE: VIRGINIA
COUNTRY: UNITED STATES
ZIP: 22201-4714
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC COMPATIBLE
OMBUTER: IBM PC COMPATIBLE
OMBUTER: IBM PC COMPATIBLE
OMBUTER: STATEM: PC COMPATIBLE
OFFICE OFFICE OFFICE OFFICE OFFICE OFFICE OFFI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CLASSIFICATION: 435

PRIOR APPLICATION DATA:
APPLICATION NUMBER: 62 9210717.6
FILING DATE: 20-MAY-1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 62 9215655.3
FILING DATE: 23-ULI-1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: WO GB93/01039
FILING DATE: 20-MAY-1993
ATTORNEY/AGENT INFORMATION:
NAMB: CRAMFORD, ARTHUR REGISTRATION NUMBER: 25327
REFISHENCE/POCKET NUMBER: 25327
REFISHENCE/POCKET NUMBER: 1498-58
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AYRI-SENSE: NO
ORIGINAL SOURCE:
CLOSTRIQUM perfringens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TOPOLOGY: unknown
MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 1113 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                              572 ATAACTAT 579
                                                                                                                                                                                                                                                                   464 CTAACAAT 471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
736..1110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1..1110
                                                                                                                                                                                                                                                                                                                                                       US-08-341-538A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
NAME/KEY:
LOCATION:
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; NAME/KEY;
; LOCATION:
US-08-341-538A-1
                                                                   ò
                                                                                                       셤
                                                                                                                                                                                 g
                                                                                                                                            à
                                                                                                                                                                                                                                à
                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                   Sequence 199, Application US/08961527
Patent No. 6420135
GENERAL INFORMATION:
APPLICANT: Charles Kunsch
TITLE OF INVENTION: Streptococcus pneumoniae Polynucleotides and Sequences
NUMBER OF SEQUENCES: 391
CORRESPONDENCE ADDRESS:
ADDRESSEE: Human Genome Sciences, Inc.
STREET: 9410 Key West Avenue
CITY: ROCKVILLE
CONTR. ROCKVILLE
CONTR. ROCKVILLE
CONTR. ROCKVILLE
                                      1732 GATGATAATGGTGAGTATTCCGATACQCGTTTATCTCCAGATGATTTTAGAAAAAT 1791
                                                                                                                    1792 Grcritaacrgaagaaraaaaargrigcccarcaatgaaagaagaagratttaaacag 1851
530 grtrccatrctaaatacdaaaartrrgtrcaraaaaaaaaaaaaaaaaaaaaaaaaa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                104 Čddadadarirtrafrfriaccidrrfaraagdgidaafiadaaaadgaraccaafrig 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             272 CTGATTACGAGAATCCTTATTATGATAATAGTACATATGCTTCTCACTTTTATGATCCGG 331
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  164 Aridorirogaaarrinchoorirogaagoraaaaaaakoochoocrarorirariaaricrar 223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           332 ATACTGGAACAACATATTCCTTTTGCGAAACATGCAAAAGAAACAGGCGCGCAAAATATT 391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              224 calargatactttatalaacctgtattcalgalaatagagagagagagagagaga 283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       392 TIAACCTIGCTGGTCAAGCATACCAAAATCAAGATATGCAGCAAGCATTCTTCTACTAG 451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
4.9%; Score 41.6; DB 4; Length 2911;
Bast Local Similarity 44.6%; Pred. No. 0.088;
Matches 164; Conservative 0; Mismatches 204; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ZIP: 20850
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.50 inch, 1.4Mb storage
COMPUTER: HP Vectra 486/33
OPERATING SYSTEM: MSDOS Version 6.2
SOFTWARE: ASCII Text
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GOFTWARE: ASCII Text
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/961,527
FILING DATE:
CLASSIPRICATION: 424
PROG APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME: Brookes, A. Anders
REGISTRATION NUMBER: 36,373
REFERENCE/DOCKET NUMBER: PB340P1
TELECOMMUNICATION INFORMATION:
TELEPHONE: (301) 309-8504
                                                                                                                                                                                                1852 TTAATAAGAGAAAATAGA 1869
                                                                                                                                                           590 ATAGCAATGGATATTGGA 607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX: (301) 309-8512
INFORMATION FOR SEQ ID NO: 199:
SEQUENCE CHARACTERISTICS:
LENGTH: 2911 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Maryland
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              linear
                                                                                                                                                                                                                                                                                    US-08-961-527-199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       / TOPOLOGY:
U8-08-961-527-199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CITY: RO
STATE: M
COUNTRY:
  ઠે
                                    셤
                                                                             ઠે
                                                                                                              셤
                                                                                                                                                         ò
                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    윱
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

```
MOLECULE TYPE:
                                                                                                                          STRAIN:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: DNA
                                                                                                                                                                                                                        FEATURE:
                                                                                                                                                 FEATURE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ਨੇ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         임
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                              336 AAACTATAAACAGCTACATTCTATGAGGGCTATGCACTATTTTGGAGATATAGA 395
                                                                                             243 IGCIGATITAGAAAAIGGIATITATITCIGCIGATIACGAGAAICCITAITAIGAIAAIAG 302
                                                                                                                                            156 racitrarccadarrardaraanandecarardarcrararcaagarcarrerggarce 215
                                                                                                                                                                                                                                               216 TGATACAGATAATAATTTCTCAAAGGATAATAGTTGGTATTTAGCTTATTCTATACCTGA 275
                                                                                                                                                                                                                                                                                                 363 ACATGCAAAAGAAACAGGGGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAAAATCA 422
                                                                                                                                                                                                                                                                                                                                                276 CACAGGGGAATCACAAATAAGAAATTTTCAGCATTAGCTAGATATGAATGGCAAAGAGG 335
                                                                                                                                                                                                303 TACATATGCTTCTCACTTTATGATCCGGATACTGGAACAACATATATTCCTTTTGCGAA
                                                                                                                                                                                                                                                                                                                                                                                                    AGATATGCAGCAAGCATTCTTCTACTTAGGATTATCGCTTCATTATTTAGGAGATGTGAA
tch 4.7%; Score 39.8; DB 1; Length 1113; al Similarity 46.8%; Pred. No. 0.18; 125; Conservative 0; Mismatches 142; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INCORMATION:
GENERAL DE, RICHARD W
APPLICANT: TITBALL DR, RICHARD W
APPLICANT: WILLIAMSON DR, ETHEL D
TITLE OF INVENTION: CLOSTRIDIUM PERFRINGENS VACCINES
NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS:
ADDRESSES:
ADDRESSES: NIXON & VANDERHYE
STREET: BLA FLOOR, 1100 NORTH GLEBE ROAD
CULTY: ARLINGTON & VANDERHYE
STATE: VIGGINA B.
COUNTRY: UNITED STATES
ZIP: 22201-4714
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
COMPUTER: APPLICATION NUMBER: US/08/725,518
FILING DATE: 28-NOV-1994
CLASSIFICATION NUMBER: US 08/341538
FILING DATE: 20-MAY-1992
PRIOR APPLICATION NUMBER: GB 9210717.6
FILING DATE: 20-MAY-1992
PRIOR APPLICATION NUMBER: GB 9210717.6
FILING DATE: 20-MAY-1993
FILING DATE: 20-MAY-1993
FILING DATE: 20-MAY-1993
ATTORNEY/AGENT INFORMATION:
AAPPLICATION NUMBER: WO GB93/01039
FILING DATE: 20-MAY-1993
ATTORNEY/AGENT INFORMATION:
AAPPLICATION NUMBER: WO GB93/01039
FILING DATE: 20-MAY-1993
ATTORNEY/AGENT INFORMATION:
AAPPLICATION NUMBER: WO GB93/01039
FILING DATE: 20-MAY-1993
ATTORNEY/AGENT INFORMATION:
AAPPLICATION NUMBER: WO GB93/01039
FILING DATE: 20-MAY-1993
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    483 TCAGCCAATGCATGCAGCAAACTTTAC 509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   396 TACTCCATATCATCCTGCTAATGTTAC 422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 1, Application US/08725518 Patent No. 5851827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME: CRAWPORD, ARTHUR R
REGISTRATION NUMBER: 25327
REFERENCE POCKET NUMBER: 1:
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LENGTH: 1113 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
TOPOLOGY: unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 8
US-08-725-518-1
                                                                                                                                                                                                                                                                                                                                                                                                 423
  Query Match
                          Best Local
Matches 17
                                                                                                                                            셤
                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                 ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                              δ
```

```
243 TGCTGATTTAGAAAATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGATAATAG 302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 156 ractrarccacarrardaradaargcarardarcrararcaagarcarrecggarcc 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     216 rgaracagaraaraarrircrcaaaggaraaragrregrarrragcrrarrcraraccrga 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          363 ACATGCAAAAGAAACAGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAAAATCA 422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       276 CACAGGGGAATCACAAATAAGAAATTTTCAGCATTAGCTAGATATGAATGGCAAAGAGG 335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              423 AGATATGCAGCAAGCATTCTTCTACTTAGGATTATCGCTTCATTATTTAGGAGATGTGAA 482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PROBES AND METHOD FOR DETECTING UREAPLASMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           786 GAİTLATTGATGCCATTİTTAGTİGCTCCTGGAĞAAĞGTATTTATGACACTTCAATAATT 727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   303 TACATATGCTTCTCACTTTTATGATCCGGATACTGGAACAACATATATTCCTTTTGCGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                 ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 o;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
4.7%; Score 39.8; DB 4; Length 1353;
Best Local Similarity 43.8%; Pred. No. 0.2;
Matches 173; Conservative 0; Mismatches 222; Indels 0.
                                                                                                                                                                                                                                                                                                                                                     Length 1113;
                                                                                                                                                                                                                                                                                                                                               Query Match 4.7%; Score 39.8; DB 2; Length 1 Best Local Similarity 46.8%; Pred. No. 0.18; Matches 125; Conservative 0; Mismatches 142; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Chen, Ellson Y.
APPLICANT: Glass, Jennifer S.
APPLICANT: Glass, John I.
APPLICANT: Heiner, Cheryl R.
APPLICANT: Lefkowitz, Elliot
TITLE OF INVENTION: NUCLEIC ACID PROBES AND
TITLE OF INVENTION: URBALYICUM
FILE REFERENCE: UAB-13452/22
CURRENT APPLICATION NUMBER: US/09/601,198
CURRENT FILING DATE: 2000-12-08
PRIOR APPLICATION NUMBER: 60/073,189
PRIOR FILING DATE: 1998-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   483 TCAGCCAATGCATGCAGCAAACTTTAC 509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                396 racrecararearecrecraarerrae 422
                                                                                               : Clostridium perfringens
double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; Sequence 37, Application US/09601198; Patent No. 6531583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; ORGANISM: Ureaplasma urealyticum
US-09-601-198-37
DNA (genomic)
NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQ ID NOS: 181
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
APPLICANT: Cassell, Gail H.
APPLICANT: Chen, Ellson Y.
                                                                                                                                                                                                                                             CDS
736..1110
                                                                                                                                                                      CDS
1..1110
                     HYPOTHETICAL: NO ANTI-SENSE: NO ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-601-198-37/C
                                                                                               ORGANISM:
                                                                                                                                                                      NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                           , NAME/KEY:
, LOCATION:
US-08-725-518-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 1353
```

g

8 8 8

셤 ઠે 셤 ઠે

```
581645 İGAAACATCGAAİTATTITCAATACGAATATTATİTITCAAAİGTACGATGİAAAAAİTA 581586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                581585 TAAAATTTTTTTTTTTAATTTAATGACGAGAAATAATAAGAGATATAATATTAATATAT 581526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     192 TAATACAACGATTGTGAATCCGAATGAAACTGCATTATTAAATGAGTGGCGTGCTGATTT 251
                        252 AGAAAATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGATAATAGTACATATGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               312 TICTCACTITIAIGAICCGGAIACIGGAACAACAIAIATTICCTITIGCGAAACAIGCAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 67, Application US/08961083
Patent No. 6159469
GENERAL INFORMATION:
APPLICANT: Choi et. al.
TITLE OF INVENTION: Streptococcus pneumoniae Antigens and Vaccines
NUMBER OF SEQUENCES: 452
CORRESPONDENCE ADDRESS:
ADDRESSEE: Human Genome Sciences, Inc.
                                                                                                                                          Sequence 1, Application US/09790988

Patent No. 6632935

GENERAL INFORMATION:

APPLICANT: SHIGKNBU, SHUJI

APPLICANT: HATTORI, MASAHIRA

APPLICANT: HATTORI, MASAHIRA

APPLICANT: SAKAKI, YOSHIYUKI

ITILE OF INVENTION GENORE DNA OF BACTERIAL SYMBIONT OF APHIDS

FILE REFERENCE: 081356/0159

CURRENT APPLICATION NUMBER: US/09/790, 988

CURRENT FILING DATE: 2001-02-23

PRIOR PILING DATE: 2000-04-07

PRIOR PILING DATE: 2000-04-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 4; Length 640681;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 39; DB 4; Le
Pred. No. 4.1;
0; Mismatches 105;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3.50 inch, 1.4Mb storage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       581465 TTTAACATGTATAATTTCATTTTACAT 581439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 372 AGAAACAGGGGAAAATATTTTAACCT 398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE: Human Genome Sciences, Inc. STREET: 9410 Key West Avenue CITY: Rockville STATE: Maryland
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READBLE FORM:
MEDIUM TYPE: Diskette, 3.50 inch, 1.4M COMPUTER: HP Vectra 486/33 OPERATING SYSTEM: MSDOS version 6.2 SOFTWARE: ASCII Text CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/961,083
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 4.6%;
Best Local Similarity 49.3%;
Matches 102; Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQ ID NOS: 7
SOFTWARE: Patentin Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE;
CLASSIFICATION: 435
PRIOR APPLICATION DATA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; TYPE: DNA
; ORGANISM: Buchnera sp.
US-09-790-988-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH: 640681
                                                                                                        RESULT 11
US-09-790-988-1/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    20850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-961-083-67
                                            62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQ ID NO 1
                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                157 TGGATTGTAAATCGTGCAATTGACATCATGTCTCGTAATACAACGATTGTGAATCCGAAT 216
97 GCACCGAITTTAAGATGGTCAGCTGAGGATAAGCATAATGAGGGGATTAACTCTCATTTG 156
                                        607
                                                                                                                                                                   606 AAAACAATTCCACTAACACATATTCGCTCAATTTTAACTGCTTCATCAATTCCTTTAAA 547
                                                                                                                                                                                                                                                 277 TACGAGAATCCTTATTATGATAATAGTACATATGCTTCTCACTTTTATGATCCGGATACT 336
                                                                                                                                                                                                                                                                                           546 aárahtgaaarítátgaíttttaífaabatagítttagtcárítatátggtgtggtggt 487
                                                                                                                                                                                                                                                                                                                                   337 GGAACAACATATATTCCTTTTGCGAAACATGCAAAAGAAACAGGGGGAAAATATTTAAC 396
                                                                                                                                                                                                                                                                                                                                                                            486 ttägattttaäaägaggaatagaagcátataaaaaaggaaagaagaagaatittaagg 427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    285 TCCȚIATȚATGATAAȚAGTACATATGCTTCTCACTTȚTATGATCCGGATACTGGAACAAC 344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               345 ATATATTCCTTTTGCGAAACATGCAAAAGAAACAGGCGCAAAATATTTTAACCTTGCTGG 404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                405 TCAAGGATACCAAAATCAAGATATGCAGCAAGCAT--TCTTCTACTTAGGATTATCGCTT 462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              463 CATTATTTAGGAGATGTGAATCAGCCAATGCATGCAGCAAACTTTACGAATCTTTCTAT 522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTT-TCAGATAGCAATGGATATTGGAATTGGAAAGGAGCAAACCCAGAAGATTGGATTGA 641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     666 ccratiforcaciograficartiacartiaricaarcitatraratoritaaraacgctaar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
4.6%; Score 39.2; DB 4; Length 8:
Best Local Similarity 13.6%; Pred. No. 0.24;
Matches 49; Conservative 165; Mismatches 143; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Jobert, S.
APPLICANT: Glordano, J.Y.
TITLE OF INVENTION: ESPS and Encoded Human Proteins.
FILE REPERENCE: GENSET.054PR2
CURRENT APPLICATION NUMBER: US/09/621,976
CURRENT RILING DATE: 2000-07-21
NUMBER OF SEQ ID NOS: 19335
SOFTWARE: Patent.pm
SEQ ID NO 2813
LENGTH: 832
                                                                                                                                                                                                                                                                                                                                                                                                                                                            426 AAACACAAAGATAAACAACTAGTTAAAGAAATGGA 392
                                                                                                                                                                                                                                                                                                                                                                                                                      397 CTIGCIGGICAAGCAIACCAAAAICAAGAIAIGCA 431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 2813, Application US/09621976
Patent No. 6539063
PAPELIAL INFORMATION:
APPLICANT: Dumas Milne Edwards, J.B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; NAME/KEY: CDS
; LOCATION: 235.399
US-09-621-976-2813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -09-621-976-2813/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          523
```

ઠ 셤 ò 셤 ò a ઠે 쉽 ò 요 ò

```
Sequence 2, Application US/08920812; Patent No. 5763188
      ATTORNEY/AGENT INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STREET: 6300 (
CITY: Chicago
                                                                                                                                                                                                                                                                                                       US-09-536-784-67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-920-812-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           엄
                                                                                                                                                                                                                                                                                                                                                                                                                                                      244 GCTGATTTAGAAAATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGATAATAGT 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            304 ACATATGCTTCTCACTTTTATGATCCGGATACTGGAACAACATATATTCCTTTTGCGAAA 363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    68 AAAGACGCTGGCTATGTTATTAATCTATCAAAAGATACCTTTATAAAACCTGTATTCAAG 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              364 CATGCAAAAGAAACAGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAAAATCAA 423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       128 AAAATAGAGGAGAAAAAGGAGGAAGAAATAAACCTACTTTTGATGTATCGAAAAAGAAA 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GATATGCAGCAAGCATTCTTCTACTTAGGATTATCGCTTCATTATTTAGGAGATGTGAAT 483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            188 GATAACCCACAAGTAAACCATAGTCAATTAAATGAAAGTCACAGAAAAGAGGATTTACAA 247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         484 CAGCCAATGCATGCAGCAAACTTTACGAATCTTTCTTATCCAATGGGTTTCCATTCTAAA 543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 248 AGAGAAGAGCATTCACAAAAATCTGATTCAACTAAGGATGTTACAGCTACAGTTCTTGAT 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8 GGTGAATTAGAAAAAGGATACCAATTTGATGGTTGGGAAATTTCTGGTTTCGAAGGTAAA 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 67, Application US/09536784

Patent No. 6573082

GENERAL INFORMATION:
APPLICANT: Choi et. al.
TITLE OF INVENTION: Streptococcus pneumoniae Antigens and Vaccines NUMBER OF SEQUENCES: 452
CORRESPONDENCE ADDRESS:
ADDRESSE: Human Genome Sciences, Inc.
STREET: 9410 Key West Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                              ö
                                                                                                                                                                                                                                                                                                                                                                 Query Match 4.5%; Score 38.4; DB 3; Length 352; Best Local Similarity 44.6%; Pred. No. 0.28; Matches 150; Conservative 0; Mismatches 186; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.50 inch, 1.4mb storage
COMPUTER: HP Vectra 486/33
COMPUTER: HP Vectra 486/33
OPERATING SYSTEM: MSDOS VERSION 6.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      308 AAAAACAATATCAGTAGTAAATCAACTACTAACAAT 343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              544 TACGAAAATTTTGTTGATACAATAAAAAAAACTAT 579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US/09/536,784 FILING DATE: 30-Oct-1997 CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/961,083
FILING DATE: OCT-30-1997
                                                              NAME: Brookes, A. Anders
REGISTRATION NUMBER: 36,373
REFERENCE/DOCKET NUMBER: PB340P2
TELECOMMUNICATION INFORMATION:
TELEPHONE: (301) 309-8504
TELEFRAX: (301) 309-8512
INFORMATION FOR SEQ ID NO: 67;
                                          ATTORNEY/AGENT INFORMATION:
NAME: Brookes, A. Anders
                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
LENGTH: 352 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STATE: Maryland COUNTRY: USA
APPLICATION NUMBER:
FILING DATE:
                                                                                                                                                                                                                                                                                                   ; TOPOLOGY: linear
US-08-961-083-67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 13
US-09-536-784-67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              . <u>අ</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g
```

```
244 GCTGATTTAGAAAATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGATAATAGT 303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    304 ACATATGCTTCTCACTTTTATGATCCGGATACTGGAACAACATATATTCCTTTTGCGAAA 363
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       68 AAAGACGCTGGCTATGTTATTAATCTATCAAAAGATACCTTTATAAAACCTGTATTCAAG 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             364 CATGCAAAAGAAACAGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAAAATCAA 423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    128 AAAATAGAGGAGAAAAAGGAGGAAGAAAATAAACCTACTTTTGATGTATCGAAAAAGAAA 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GATATGCAGCAAGCATTCTTCTACTTAGGATTATCGCTTCATTATTTAGGAGATGTGAAT 483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              188 GATAACCCACAAGTAAACCATAGTCAATTAAATGAAAGTCACAGAAAAGAGGGTTTACAA 247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        484 CAGCCAATGCATGCAGCAAACTTTACGAATCTTTCTTATCCAATGGGTTTCCATTCTAAA 543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           248 AGAGAAGAGCATTCACAAAAATCTGATTCAACTAAGGATGTTACAGCTACAGTTCTTGAT 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8 GGTGAATTAGAAAAAGGATACCAATTTGATGGTTGGGAAATTTCTGGTTTTCGAAGGTAAA 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Ohno, Tsuneya
APPLICANT: Matsuhisa, Akio
APPLICANT: Watsuhisa, Hirotsugu
APPLICANT: Eda, Soji
TITLE OF INVENTION: Probe for Diagnosing Infectious Disease
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 352;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE: Marshall, O'Toole, Gerstein, Murray & Borun STREET: 6300 Sears Tower, 233 South Wacker Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 4.5%; Score 38.4; DB 4; Length 3 Best Local Similarity 44.6%; Pred. No. 0.28; Matches 150; Conservative 0; Mismatches 186; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STATE: Illinois
COUNTRY: United States of America
ZIP: GOGGG-6402
COMPUTER READABLE FORM:
MEDLUM TYPE: Floppy disk
COMPUTER: IBM PC. COMpatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/920,812
FILLING DATE: 29-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  544 TACGAAAATTTTGTTGATACAATAAAAATAACTAT 579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         308 AAAAACAATATCAGTAGTAAATCAACTACTAACAAT 343
NAME: Michelle S. Marks
REGISTRATION NUMBER: 41,971
REPERBNICE/DOCKET NUMBER: PB340P3
TELECOMMUNICATION INFORMATION:
TELEPHONE: (301) 309-8504
TELEFAX: (301) 309-8512
INFORMATION FOR SEQ ID NO: 67:
SEQUENCE CHARACTERISTICS:
LENGTH: 352 base pairs
                                                                                                                                                                                                                                                                                                                            TYPE: nucleic acid
STRANDEDNESS: double
TOPOLOGY: linear
SEQUENCE DESCRIPTION: SEQ ID NO: 67:
```

```
ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             d
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3818 ridcrahadanakanakarrakarrakarrakandangkarrakarrakarrakarrakarrakar 3877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3878 igrogicidalagirgerragargiciralicaagraarragagaragcearcarraaarca 3937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3938 AĞGİTTAĞAİTAİTTAATGİÇAĞCATİAAÇGİTİTĞACAATGAAAÇTGTAAAİTTAĞĞTĞA 3997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            204 IGTGAATCCGAATGAAACTGCATTATTAAATGAGTGGCGTGCTGATTTAGAAAATGGTAT 263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    264 ITATICIGCIGATIACGAGAAICCITATIATGAIAAIAGIACAIATGCIICICACITITA 323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            324 TGATCCGGATACTGGAACAACATATTCCTTTTGCGAAACATGCAAAAGAAACAGGCGC 383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Mateuhiea, Akio
APPLICANT: Mateuhiea, Akio
APPLICANT: Mateuhiea, Akio
APPLICANT: Wateuhiea, Akio
APPLICANT: Wateuhiea, Akio
APPLICANT: Bda, Soji
TILE OF INVENTION: Probe for Diagnosing Infectious Disease
CORRESPONDENCE ADDRESS:
STRAES: Marshall, O'Toole, Gerstein, Murray & Borun
CITY: Ghicago
STRAE: 1011nois
COUNTY: United States of America
STRAE: Illinois
COUNTY: United States of America
ZIP: 6066-6402
COMPUTER: Illinois
COMPUTER: Ploppy disk
COMPUTER: IBM PC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1:0, Version #1:25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/920,827
FILING DATE: 29-AUG-1997
CLASSIFICATION NUMBER: US 08/362,577
FILING DATE: 27-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
4.5%; Score 38.4; DB 1; Length 10207;
Best Local Similarity 50.0%; Pred. No. 1.1;
Matches 96; Conservative 0; Mismatches 96; Indels 0;
APPLICATION NUMBER: US 08/362,577
FILING DATE: 27-MAR-1995
ATOMES 27-MAR-1995
ATOMES RIN-Laures, Li-Haien
REGISTRATION NUMBER: 33,547
REFERNCE/DOCKET NUMBER: 19036/32420
TELEPHONE: 312/474-6300
TELEPHONE: 312/474-6300
TELEPHONE: 312/474-648
TELEX: 25.3856
INFORMATION FOR SEQ ID NO: 2:
SEQUENCE CHARACTERISTICS:
LENGTH: 10207 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
TOPPOCAT: linear
MOLECULE TYPE: Genomic DNA
ORIGINAL SOURCE:
                                                                                                                         19036/32420
                                                                                                                                                                                                                                                                                                                                                                                               UKUANISM: Staphylococcus aureus
/ STRAIN: Clinical Isolate SA-24
US-08-920-812-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 2, Application US/08920827
Patent No. 5770375
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3998 AACGTTGTCTAA 4009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      384 AAAATATTTAA 395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-920-827-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ઠે
```

ن. ا

50 5.9 977 28 AZ687764 49.2 5.8 634 12 BM164871 48.2 5.7 776 28 BZ063272 48 5.7 754 12 BJ376728	47.8 5.6 1201 13 BX355654 47 5.5 862 28 AX677978 77 5.5 1101 20 AX6777978	46.4 5.5 1190 29 CNSO1742 46.4 5.5 686 29 CNSO3412 46 5.4 1201 13 BX361152	44 44 60 80 80 80 80 80 80 80 80 80 80 80 80 80	44.6 5.3 740 29 CNSO02XZ 44.6 5.3 843 29 CNSO0CSI	44.2 5.2 541 29 CNSO4KUS 44.2 5.2 833 28 BH154104	44:2 5:2 1101 29 CNSOULTZ 44 5:2 613 12 BJ401356 44 5:2 666 14 CR101001	44 5.2 829 29 CNSO0A4K 44 5.2 838 28 AZISSO7	44 5.2 1056 13 BX415058 44 5.2 1124 13 BX436282 44 5.2 1200 13 BX43778 43.8 5.2 575 28 BZ780846	43.8 5.2 1/05 L2 B0446/75 43.8 5.2 1201 13 BX461310 43.6 5.1 429 9 AU262155	43.6 5.1 494 28 AZ179729 43.6 5.1 526 9 ANU37906 43.6 5.1 543 29 RX233514	43.6 5.1 B16 12 BJ437362 43.6 5.1 BR9 29 CNGOALT	43.6 5.1 992 29 CNSO6P6W 43.4 5.1 1201 9 AL536104	43.2 5.1 470 43.2 5.1 609 43.2 5.1 1101	ALIGNMENTS		650/c BX414650 1TION BX414650 Homo sapiens THYMUS Homo sapiens cDNA clone CS0CAP001YN02		2				Contact : Feng Liang Email : fliang@lifetech.com URL : http://fulllength.invitrogen.com/ InVitroGen Corporation 1600 Faraday Avenue Genoscope sequence ID : CSOCAPOOIDGOINP1. RES Location/Qualifiers source 1994
0 00		0 0	c 117			00				0 0 6 6 6	9 60 4	444	0 0 0 4 4 4		RESULT 1	BX414650/c LOCUS DEFINITION	ACCESSION VERSION	KEYWORDS SOURCE	PERPER H	AUTHORS TITLE JOURNAL COMMENT		FEATURES
5.1.6 Compugen Ltd.		Search time 2814 Seconds (without alignments) 9009.592 Million cell updates/sec	atacgtatgtaaatcgctaa 849		dues	rs: 55026578														results predicted by chance to have a to the score of the result being printed, of the total score distribution.	on in the state of	BX414650 BX414650 BX139987 Danio rer BM162501 EST565024 AL063921 Drosophil
GenCore version 5. Copyright (c) 1993 - 2004 Cc	OM nucleic - nucleic search, using sw model	on: August 2, 2004, 01:48:00 ; See (wit	Title: PCT-US03-12556-1 Perfect score: 849 Sequence: 1 atgaaaaagaaagtattagc	Scoring table: IDENTITY NUC Gapop 10.0 , Gapext 1.0	Searched: 27513289 segs, 14931090276 residue	Total number of hits satisfying chosen parameters	Minimum DB seq length: 0 Maximum DB seq length: 200000000	Post-processing: Minimum Match 0% Maximum Match 100% Listing first 45 summaries	Database : EST:* 1: em estba:*	2: em_esthum:* 3: em_estin:* 4: em_estin:*	5: em_cscour. 5: em_estov:* 6: em_estov:*	7: em_estro:* 8: em_htc:*	9: gb_est1:* 10: gb_est2:* 11: gb_htc:*	12: gb_est3:* 13: gb_est4:* 14: gb_est5:* 15: em_estfun:*		18: em_gss_inv:* 19: em_gss_pln:* 20: em_gss_pln:* 21: em_gss_fru:*			27: cm_gas_png. 27: db_gas_vrl:* 28: gb_gasl:* 29: db_gas_r*	the number of than or equal d by analysis	SUMMARIES * Result Query No Score March Lancth DR ID	6.1 994 13 6.1 844 29 6.1 605 12 5.9 1101 29

```
DFLEZSOI 605 bp mRNA linear EST 04-DEC-2001
EST565024 PyBS Plasmodium yoelii yoelii cDNA clone PYCKT40 5' end,
mRNA sequence.
Cypriniformes; Cyprinidae; Danio.

(bases 1 to 844)

Humphray, S.J., Huckle, E. and Durham, J.L.

Humphray, S.J., Huckle, E. and Durham, J.L.

Submitted (13-MAR-2003) The Sanger Institute, Wellcome Trust Genome Campus, Hinxton, Cambridgeshire, CB10 iSA, UK. E-mail enquiries: Hinxton, Campus, Hinxton, Cambridgeshire, CB10 iSA, UK. E-mail enquiries: This sequence was generated from the T7 end of BAC 99E7. 99E7 is part of the Daniokey BAC Library created by R. Plasterk and N.V. Keygene. Further details:

Keygene. Further details:

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 128 AGCATAATGAGGGGATTAACTCTCATTTGTGGATTGTAAATCGTGCAATTGACATCATGT 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTTAGAAAATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGATAATAGTACAT 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                308 AIGCITCICACTITIAIGAICCGGAIACIGGAACAACAIAIAITCCITTIGCGAAACAIG 367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      747 ATAATGATAATAATGATAATAATAATGATACTAATAATAATGATAATAATAATGATA 806
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           687 ATGATAATAATAATAATGATACTAATAATGACAATAATAATAATAATAATAATAATA 746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                188 CTCGTAATACAACGATTGTGAATCCGAATGAAACTGCATTATTAAATGAGTGGCGTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Alveolata; Apicomplexa; Haemosporida; Plasmodium.
1 (bases 1 to 605)
Carlton,J.M., Daly,T.M., Long,C.A., Bergman,L.W., Vaidya,A.B., Praser,C.M. and Carucci,D.J.
Plasmodium yoelii EST project at TIGR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTGCACAAACAAATAATAGTGAAAGTCCTGCACCGATTTTTAAGATGGTCAGCTGAGGATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ö
                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 844;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Jame Carlton
Parasite Genomics Group
The Institute for Genomic Research
9712 Medical Center Drive, Rockville, MD 20850,
Fat: 301-350-9319
Fax: 301-838-0208
Email: carlton@tigr.org
                                                                                                                                                                                                                                                                                                                                                                                                                                    6.1%; Score 51.8; DB 29;
47.2%; Pred. No. 0.029;
tive 0; Mismatches 177;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   368 CAAAAGAAACAGGGGCAAAATATTTTAACCTTGCT 402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          807 ATAATAATGATGATAATAATAATAATGATGAT 841
                                                                                                                                                                                                                                                                        /organism="Danio rerio"
/mol_type="genomic DNA"
/db_xref="taxon:7955"
/clone="DKEX-9957"
/tissue_type="Testis"
/note="Vector pIndigoBAC-536"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Plasmodium yoelii yoelii
Plasmodium yoelii yoelii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BM162501.1 GI:17308182
                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity 47.2'
Matches 158; Conservative
                                                                                                                                                                                                                                                         1. .844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           248
                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
                           REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 3
BM162501
                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                      COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B44 bp DNA linear GSS 13-MAR-2003 Danio rerio genomic clone DKEY-99E7, genomic survey sequence.
                                                                                            /Lissue type="THYMUS"
/clone lib="Homo sapiens THYMUS"
/note="Vector: pCMVSPORT 6; lst strand cDNA was primed
/note="Vector: pCMVSPORT 6; lst strand cDNA was primed
with a NotI-oligo(dT) primer. Five prime end enriched,
double-strand cDNA was digested with Not I and cloned into
the Not I and ECORV sites of the pCMVSPORT 6 vector.
                                                                                                                                                                                                                                                                                                                       ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    674 CTGGCGTTGTGAACGATACGACAAAGATTGGTTTGTAAAAGCAGCCGTATCTCAAGAAT 733
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGCAT-TCTTCTACTTAGGATTATCGCTTCATTATTTAGGAGATGTGAATCAGCCAATGC 493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     554 TTGTTGATACAATAAAAAAATAACTATATTGTTTCAGATAGCAATGGATATTGGAATTGGA 613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGCAGATAAATGGCGTGCGGAAGTAACACCGGTGACAGGAAAGCGTTTAATGGAAGCGC 793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     195 TACAACGATTGTGAATCCGAATGAAACTGCATTATTAAATGAGTGGCGTGCTGATTTAGA 254
                                                                                                                                                                                                                                                                                                                                                                                     910 WAAARDRWWAGAARARRADWADDWAAAWRWWDRWTAWWAKRKKWADWTTTKTTKKKDAD 911
                                                                                                                                                                                                                                                                                                                                                                                                                                               AAATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGATAATAGTACATATGCTTC 314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     494 ATGCAGCAAACTTTACGAATCTTTCTTATCCAATGGGTTTCCATTCTAAATACGAAATT 553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Danio rerio (zebrafish)
Danio rerio
Bukaryota, Metazoa, Chordata, Craniata, Vertebrata, Euteleostomi,
Actinopterygii, Neopterygii, Teleostei, Ostariophysi,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      375 AACAGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAAAATCAAGATATGCAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      614 AAGGAGCAAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCAGCTAAACAAGATTATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               315 TCACTITITATGATCCGGATACTGGAACATGTATATTCCTTTTGCGAAACATGCAAAAGA
                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                         ä
                                                                                                                                                                                                                                                                              Query Match
6.1%; Score 52.2; DB 13; Length 994;
Best Local Similarity 20.7%; Pred. No. 0.024;
Matches 125; Conservative 202; Mismatches 276; Indels 1.
                                                                                                                                                                                                   the Not I and EcoRV sites
                 organism="Homo sapiens"
                                    /mol_type="mRNA"
/db_xref="taxon:9606"
/clone="CSOCAP001YN02"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BX139987.1 GI:27971314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 794 AGCG 797
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RGGG 367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ggg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 734
                                                                                                                                                                                                                                                                                                                                                                                                                                                      255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 2
BX139987
                                                                                                                                                                                                                                                ORIGIN
```

g

셤 è

g ઠે

셤 8 셤 È g

δ

셤

ઠે

요 ò 요 ઠ 셤

ò

셤

ઠે

ô

```
144
                                     RESULT 4
CNS0039G/c
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
                                                                                                                                               ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                    AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                            primer and reverse transcriptase in the presence of 5-methyl dCTP. After second strand synthesis, uneven termini were treated with Pét DNA polymerase and EcoRI adaptors ligated to the blunt ends. The sample was cleaved with XhoI and separated on a Sephacryl S-500 column. Size-fractionated cDNA was precipitated and ligated to HybrizAP arms directionally using EcoRI-XhoI cleaved arms. After packaging, the phagemid vector (pAD-CAL4) was excised from the HybrizAP vector and plasmid DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                           /clone_lib="PyBS"
/note="Vector: pAD-GAL4; At 20-25$ parasitemia, blood was collected from BALB/cByd mice infected with Py17xL parasites, and leukocytes removed by passage over microcrystalline cellulose collumns. Total RNA was isolated using the guantidinium isothiocyanate method, and mRNA isolated using oligo(dT)-cellulose chromatography. First strand cDNA synthesis was completed using a 50-base
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAGAAAATTTTATATTTGATAATGATGAAGACGATGAAGATGATAGCAACAATGATGATG 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATTACGAGAATCCTTATTATGATAATAGTACATATGCTTCTCACTTTTATGATCCGGATA 334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Trggaartagicaraacagaaraaarccraarrcagcrcargaaaaraaraggic 395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITCTTATCCAATGGGTTTCCATTCTAAATACGAAAATTTTGTTGATACAATAAAAATA 574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGABATGGATGACGATGATGACGABATTGABGTTATCGATGABATGATGABGATG 515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  516 AAATGGATGAAGATGATGAAGATGATGATGATGAGAAGATGAAGATGAGATGAGGATG 575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      or clone info, please contact the Malaria Research and Reference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGATGATATTCATTATGAATATGAAGAGGAAATGGACGATGATTATATAGATGAGGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         216 ATGAAATAGATGTAGATAACGAAGAAGAAGATACTGAAGAGATGAAGAAGATGATAATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACTATATTGTTTCAGATAGCAATGGATATTGGAATTGGAAAGGAGCAAACCCAGAAGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGATTGAAGGAGCAGCGGTAAGCAAGCTAAACAAGATTATCCTGGCGTTGTGAACGATACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGGAACAACATATTCCTTTTGCGAAACATGCAAAAGAAACAGGCGCAAAATATTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ő
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 605;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
               Reagent Resource Center, ATCC
http://www.malaria.mr4.org/mr4pages/index.html
Seg primer: ADF.
                                                                                                           'organism="Plasmodium yoelii yoelii"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match 6.1%; Score 51.4; DB 12; Best Local Similarity 43.8%; Pred. No. 0.035; Matches 223; Conservative 0; Mismatches 286;
                                                                                                                                                                                                                           stages"
                                                                                                                                                                                                                   dev stage="Asexual blood stag
lab_host="E. coli XL-1 Blue"
clone_lib="PyBS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAAAAGATTGGTTTGTAAAAGCAGCCGTA 723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           576 ATGATGATTGGATATTGAGGACGTA 604
                                                                                                                                                                                    db_xref="taxon:73239"
clone="PYCKT40"
                                                                                                                                                                  sub_species="yoelii"
                                                                      Location/Qualifiers
                                                                                                                               mol_type="mRNA"
|strain="17XL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       isolated."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             635
                                                                                            source
                                                                        PEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
```

```
Direct Submitseion

Submitted (02-JUN-1999) Genoscope - Centre National de Sequencage :
BP 191 91006 EWRY cedex - FRANCE (B-mail : seqref@genoscope.cns.fr - Web : www.genoscope.cns.fr)

- Web : www.genoscope.cns.fr)

Determination of this BAC-end sequence was carried out as part of collaboration with the Berkeley Drosophila Genome Project (BDGP). The BDGP is constructing a physical map of the Drosophila melanogaster genome using these BACs. For further information please see http://www.fruitfly.org The BDGP Drosophila melanogaster BAC library was prepared by Kazutory Osoegawa and Aaron Mammoser in Pieter de Jong's laboratory in the Department of Cancer Genetics at the Roswell Park Cancer Institute in Buffalo, NY. The library is named RPCL-98 and was constructed by partial Ecost digestion of Drosophila DNA provided by the BDGP from the isogenic strain v2; cn bw 8p, the same strain used for the BDGP's and how to order individual BAC clones, the entire library or filters for hybridization from the BACPAC Resource Center can be found at http://bacpac.med.buffalo.edu/drosophila_bac.htm.
CNS0039G 1101 bp DNA linear GSS 03-JUN-1999
Drosophila melanogaster genome survey sequence TET3 end of BAC #
BACR08K10 of RPCI-98 library from Drosophila melanogaster (fruit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                443 TCTACTTAGGATTATCGCTTCATTATTTAGGAGATGTGAATCAGCCAATGCAGCAA 502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1040 WWWWATWDTWWDKWWWATAAKTDTAWTWWRTAWRADWAGRDRGAGKRDRDADAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TAACTCTCATTTGTGGATTGTAAATCGTGCAATTGACATCATGTCTCGTAATACAACGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           204 TGTGAATCCGAATGAAACTGCATTATTAAATGAGTGGCGTGCTGATTTAGAAAATGGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         264 TTATTCTGCTGATTA-CGAGAATCCTTATTATGATAATAGTACATATGCTTCTCACTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       33 ATGATCCGGATACTGGAACAACATATATTTCCTTTTGCGAAACATGCAAAAGAAACAGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                     Drosophila melanogaster
Eukaryota, Metazoa, Arthropoda, Hexapoda, Insecta, Pterygota,
                                                                                                                                                                                                                                                                                                                 Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;
Ephydroidea; Drosophilidae; Drosophila.
1 (bases 1 to 1101)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ı,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 1101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         organism="Drosophila melanogaster"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 5.9%; Score 50.4; DB 29; Best Local Similarity 15.0%; Pred. No. 0.067; Matches 85; Conservative 254; Mismatches 226;
                                                                                                                                                                                                                       (fruit fly)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /mol_type="genomic DNA"
/db_xref="texon:7227"
/clone="macRoSt10"
/clone lib="RPCI 98"
/note="end : TET3"
                                                                                            genomic survey sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                                                                                                                                                                                                    Drosophila melanogaster
                                                                                                                                                        AL063921.1 GI:4941778
                                                                                                                                                                                                                                                                                                                                                                                                              Senoscope
                                                                                                                                                                                         GSS
```

<u>::</u> ::

셤 È 셤 δ 셤 ઠે 셤

ઠે

```
BM164871 634 bp mRNA linear EST 04-DEC-2001 EST567394 PyBS Plasmodium yoelii yoelii cDNA clone PYCMD07 5' end,
                                                                                                                                                                                                    440 Arcchanahugccrrcarcritriccrrarcharcararicarahargraccaacig 381
                                                                                                                                                                                                                                           TIGITGATACAATAAAATAACTATATTGTTTCAGATAGCAATGGATATTGGAATTGGA
                                                                                                                                                                                                                                                                                                                         614 AAGGAGCAAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCAGCTAAACAAGATTATC 673
                                                                                                                                                                                                                                                                                                                                                          320 ATGAAGTAAGAAGAAGAACAAGAAAGAAGCCTGAGTTTGAAGTTGATAATGATAATG 261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       For clone info, please contact the Malaria Research and Reference Reagent Resource Center, ATCC http://www.malaria.mr4.org/mr4pages/index.html
                                    380 gigirigairratragaaaargcrocargcaaragagararracrocoracagroficag
                                                                                        435 AGCATTCTTCTACTTAGGATTATCGCTTCATTA-TTTAGGAGATGTGAATCCAGCCAATGC
                                                                                                                             500 TTGAAGAAGTTATTAAATATGCAAAATTCATTAGTGGAACGGTTGCACAACAACCTT
                                                                                                                                                                494 ATGCAGCAAACTTTACGAATCTTTCTTATCCAATGGGTTTCCATTCTAAATACGAAAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Carlton,J.M., Dally,T.M., Long,C.A., Bergman,L.W., Vaidya,A.B., Fraser,C.M. and Carucci,D.J.
Plasmodium yoelii EST project at TIGR
Unpublished (2001)
            375 AACAGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAAAATCAAGATATGCAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Plasmodium yoelii yoelii
Plasmodium yoelii yoelii
Eukaryota, Alvoolata, Apicomplexa, Haemosporida, Plasmodium.
I (bases 1 to 634)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Contact: Jane Carlton
Parasite Genomics Group
The Institute for Genomic Research
712 Medical Center Drive, Rockville, MD 20850, USA
71: 301-530-9319
Fax: 301-838-0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Plasmodium yoelii yoelii"
//mol_type="mRNA"
/strain="17XL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /dev stage="Asexual blood stages"
/lab_host="E. coli XL-1 Blue"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="taxon:73239"
/clone="PYCMD07"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sub_species="yoelii"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                           674 CTGGCGTTGTGAACGATA 691
                                                                                                                                                                                                                                                                                                                                                                                                                                                  260 ATGTTGTTCTTATGGAAA 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Email: carlton@tigr.org
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BM164871.1 GI:17310552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Seq primer: ADF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mRNA sequence.
                                                                                                                                                                                                                                                      554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 6
BM164871
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                          g
                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                      g
                                                                                                                                                                      ठे
                                                                                                                                                                                                         용
                                                                                                                                                                                                                                                      δ
                                             셤
                                                                                            ઠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Entamoeba histolytica

Entamoeba histolytica

Entamoeba histolytica

Entamoeba histolytica

Eukaryota; Entamoebidae; Entamoeba.

CB 1 (bases 1 to 977)

RS Loftus, B., Van Aken, S. and Fraser, C.

Determination of clone end sequences from Entamoeba histolytica

HM1:IMSS sheared DNA library

HM1:IMSS sheared DNA library

LOTOLOGIC: Brendan J. Loftus

Department of Bukaryotic Genomics

The Institute for Genomic Research

9712 Medical Center Dr., Rockville, MD 20850, USA

Tel: 301 838 0208

Fax: 301 838 3543

Email: bjloftus@tigr.org

Clones are derived from the Entamoeba histolytica HM1:IMSS sheared

DNA library

Clanes - Phoreman
                                                                                                                                                                                                                                                                                                                                                                                     977 bp DNA linear GSS 14-DEC-2000 ENTHD9TF Entamoeba histolytica Sheared DNA Entamoeba histolytica AZ687764
                                                                                                                                       623 ACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCAGCTAAACAAGATTATCCTGGCGTTG 682
                                      ACTITIACGAATCITICITATCCAATGGGTTTCCATICTAAATACGAAAATTTTGTTGATA 562
                                                                 620 KWDWKTRADRWDRWAADTWTDARKADRDWAKARAWRARRDRARARADRRWTYKGKTTTA 561
800 RKRADDKRDAADDRDDAATWTTWTTTTRDTDDWKWKTDTWTRWAADRTWDRDDDDRDR 741
                                                                                                                  563 CAATAAAAATAACTATATTGTTTCAGATAGCAATGGATATTGGAATTGGAAAGGAGCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5.9%; Score 50; DB 28; Length 977;
49.4%; Pred. No. 0.084;
tive 0; Mismatches 160; Indels
                                                                                                                                                                                                                                                                                                     | : :|; | :|; | S60 TWITWARRAAWWAWAWATITATWIT 535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Class: shotgun
High quality sequence start: 58
High quality sequence stop: 493.
Location/Qualifiers
                                                                                                                                                                                                                                                                            683 TGAACGATACGACAAAGATTGGTTT 708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AZ687764.1 GI:11824910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ouery Match
Best Local Similarity 49.4
Matches 157; Conservative
```

VERSION KEYWORDS SOURCE ORGANISM

ACCESSION

AUTHORS TITLE

REFERENCE

JOURNAL COMMENT

RESULT 5 AZ687764/C DEFINITION Bource

FEATURES

ij

Gaps ï

ORIGIN

g

ઠે

a

ઠે

g

ò

a

ò

```
BJ376728
BJ376728.1 GI:19286111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /sex="mat A"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity 45.7
Matches 168; Conservative
                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1. .754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity
                       Similarity
                           Best Local Sim
Matches 113;
                                                                                  268
      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 8
BJ376728/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LOCUS
                                                                                                                g
                                                                                                                                                             ઠે
                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                           ઠે
                                                                                                                                                                                                                                                                                 셤
                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                셤
                                                                                  ઠે
                                                                                                                                                                                                                                                                                                                            à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
termini were treated with Pfu DNA polymerase and EcoRI adaptors ligated to the blunt ends. The sample was cleaved with XhoI and separated on a Sephacryl S-500 column. Size-fractionated cDNA was precipitated and ligated to HybrizApP arms directionally using EcoRI-XhoI cleaved arms. After packaging, the phagemid vector (pAD-CAL4) was excised from the HybriZAP vector and plasmid DNA
                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BZ063272 776 bp DNA linear GSS 10-OCT-2002 lkz69h12.b1 B.oleracea002 Brassica oleracea genomic, genomic survey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /Glone lib="Boleracea002"
/note="Vector: pOTw13; Whole genome shotgun library from flowering buds. DNA was purified from a crude nuclear prep using Brassica oleracea TO1000DH3 buds provided by Thosmas Osborn at the University of Wisconsin. Genomic DNA was provided by Pablo Rabinowicz (CSHL) and the Sequencing Center.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Brassica oleracea

Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;

rosida; eurosida II; Brassicales; Brassicaceae; Brassica.

1 (bases 1 to 776)

Delehaunty, K., Fewell, G., Fulton, L., McCombie, W.R., Miner, T.,

Nash, W., Rabinowicz, P.D. and Wilson, R.K.

Whole genome shotgun reads from Brassica oleracea
                                                                                                                                                                                                                                                                                                                                                                    999
                                                                                                                                                                                                                                                                                                                                                                                                                                                       726
                                                                                                                                                                                                                                                                                      GAAAATTTTGTTGATACAATAAAAAATAACTATATTGTTTCAGATAGCAATGGATATTGG 606
                                                                                                                                                                                                                                                                                                                            GAAAGTTTTGGAGGAAAAATAAAAAAAGATAAAATGGGTTATGAGAAAATGAAAAGTGAA 154
                                                                                                                                                                                                                                                                                                                                                                                                          155 GATACTACAGAAGAAAGTCAGATGAAGAAGATGAAGAGGATGAAGAAGAAGAA 214
                                                                                                                                                                                                                                                                                                                                                                    AATTGGAAAGGAGCAAAACCCAGAAGATTGGAAGGAGCAGCGGTAGCAACAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                       GATTATCCTGGCGTTGTGAACGATACGACAAAGATTGGTTTGTAAAAGCAGCCGTATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      727 CAAGAATATGCAGATAAATGGCGTGCGGAAGTAACACCGGTGACAGGAAA 776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            275 aaagaagaactatagaargreecaccattagereeaattatagaaggaga 324
                                                                                                                                                                                                   Score 49.2; DB 12; Length 634;
Pred. No. 0.12;
0; Mismatches 113; Indels 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Contact: Richard K. Wilson
Genome Sequencing Center
Washington University School of Medicine
Email: submissions@watson.wustl.edu
Plate: 1kz69 row: h column: 12
Seq primer: -21UFpOT forward
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         organism="Brassica oleracea"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /mol_type="genomic DNA"
/db xref="taxon:3712"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        High quality sequence start: 8 High quality sequence stop: 551. Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BZ063272.1 GI:23673911
                                                                                                                                                                                                     Query Match 5.8*;
Best Local Similarity 50.9*;
Matches 117; Conservative
                                                                                                                                            isolated."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Brassica oleracea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Class: shotgun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ведпенсе.
                                                                                                                                                                                                                                                                                      547
                                                                                                                                                                                                                                                                                                                            95
                                                                                                                                                                                                                                                                                                                                                                    607
                                                                                                                                                                                                                                                                                                                                                                                                                                                     667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BZ063272/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORIGIN
```

```
BJ376728 Bictyostelium discoideum cDNA linear EST 08-MAR-2002 BJ376728 Dictyostelium discoideum cDNA library, CF Dictyostelium discoideum cDNA clone ddc29013 3', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                   ö
                                                                                                                                                                                                387
                                                                                                                                                                                                                                              631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   312
                                                                                                                                               428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  313 TCTCACTTTTATGATCCGGATACTGGAACAACATATATTCCTTTTGCGAAACATGCAAAA 372
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                367 GATGATGATGATGATGATGATGATGTGTATATTATCAAGAAGAAGGATTTGAAGAT 308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   373 GAAACAGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAAAATCAAGATATGCAG 432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Dictyostelium discoideum
Dictyostelium discoideum
Dictyostelium discoideum
Eukaryota; Mycetozoa; Dictyosteliida; Dictyostelium.
1 (Dases I to 754)
Urushihara,H., Tanaka,Y., Kohara,Y. and Shin-i,T.
Full length cDNA of Dictyostelium discoideum at the culmination
                                                                                                                                                                                                328 CCGGATACTGGAACAACATATATTCCTTTTGCGAAAACATGCAAAAGAAACAGCGCAAAA
                                                                                                                                                                                                                                              /dev_stage="Culmination stage"
/clone_lib="Dictyostelium discoideum cDNA library, CF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   253 GAAAATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGATAATAGTACATATGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 193 AATACAACGATTGTGAATCCGAATGAAACTGCATTATTAAATGAGTGGCGTGCTGATTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
  Length 776;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 12; Length 754;
                                                   IndelB
                                                                                                    TCTGCTGATTACGAGAATCCTTATTATGATAATAGTACATATGCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                              448 TTAGGATTATCGCTTCATTATTTAGGAGATGTGAATCAGCCAA 490
                                                                                                                                                                                                                                                                                                                                                                                                                                         570 GGGTGATTAGGACTCTAATTTGTAAAAGAGGCCCATTATTGAA 528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Dictyostelium discoideum"
/mol_type="mRNA"
/strain="AX4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unpublished (2002)
Contact: Tadasu Shin-i
Conter: Tadasu Shin-i
National Institute of Genetics
1111 Yata, Mishima, Shizuoka 411-8540, Japan
Tel: 81-559-81-6855
Fax: 81-559-81-6855
5.7%; Score 48.2; DB 28;
50.7%; Pred. No. 0.23;
ive 0; Mismatches 110;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   200;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5.7%; Score 48; 45.7%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /db_xref="taxon:44689"
/clone="ddc29013"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Email: tshini@genes.nig.ac.jp.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
```

φ

819

744

804

```
/mol_type="genomic DNA"
/# strain="HM1:NBS"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/# xef="taxon:5759"
/#
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AZ677978 862 bp DNA linear GSS 14-DEC-2000
ENTHJ38TR Entamoeba histolytica Sheared DNA Entamoeba histolytica
                                                               525 CCAGAAGATTGGATTGAAGGAGCAGCGGTAGCAGCTAAACAAGATTATCCTGGCGTTGTG 684
                                                                                                                                                                                                                                                               Email: bjloftus@tigr.org
Clones are derived from the Entamoeba histolytica HM1:IMSS sheared
DNA library
Seq primer: M13-Reverse
                                                                                                             685 AACGATACGACAAAAGATTGGTTTGTAAAAGCAGCCGTATCTCAAGAATATGCAGATAAA
                                                                                                                                                                                                                                                                                                                                                  745 TGGCGTGCGGAAGTAACACCGGTGACAGGAAAGCGTTTAATGGAAGCGCAGCGCGTTACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    from Entamoeba histolytica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5.5%; Score 47; DB 28; Length 862; larity 48.9%; Pred. No. 0.46; Conservative 0; Mismatches 160; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Contact: Brendan J Loftus
Department of Bukaryotic Genomics
The Institute for Genomic Research
9712 Medical Center Dr., Rockville, MD 20850,
7813 301 838 0208
Fax: 301 838 3543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             805 GCTGGTTATATTCATTTGTGGTTTGATACGTATGTAAA 842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      940 ARADKKGAKAWITWAWITATITITAAATDWATKAAWA 977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Entamoeba histolytica"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Entamoeba histolytica
Entamoeba histolytica
Eukaryota; Entamoebidae; Entamoeba.

1 (bases 1 to 862)
Loftus, B., Van Aken, S. and Fraser, C.
Determination of clone end sequences from the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             genomic, genomic survey sequence. AZ677978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Class: shotgun
High quality sequence start: 15
High quality sequence stop: 862.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AZ677978.1 GI:11815244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1. .862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Matches 154; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 10
AZ677978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DRIGIN
                                                                                                                        셤
                                                                                                                                                                                                   à
                                                                                                                                                                                                                                                                          엄
                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                      ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EST 05-MAY-2003
CAAGCAITCTTCTACTTAGGAITATCGCTTCAITATTTAGGAGATGTGAATCAGCCAATG 492
                                                                                                                                                                                                                                                                                                                                              128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BX355654 10mo sapiens PLACENTA COT 25-NORMALIZED Homo sapiens CDNA COT 25-NORMALIZED Homo sapiens CDNA SX355654 HOMO SAPIENS, MRNA SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Contact: Genoscope
Genoscope - Centre National de Sequencage
Genoscope - Centre National de Sequencage
BP 191 91006 EVRY cedex - France
Email: seqrefégenoscope.ons.fr, Web: www.genoscope.cns.fr
Library was constructed by Life Technologies, a division of
Invitrogen. Contact: Feng Liang Email: fliangelifetech.com URL:
http://fullsngth.invitrogen.com/ InVitroGen Corporation 1600
Faraday Avenue Genoscope sequence ID: CSODI002BC06NPI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITACGAATCITICITATCCAATGGGTTTCCATTCTAAATACGAAAATTTTGTTGATACA 564
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eukaryota; Metazoa, Chordata, Craniata, Vertebrata; Euteleostomi, Mammalia, Butheria; Primates; Catarrhini; Hominidae; Homo. Li, Mases I to 1201)
Li, M.B., Gruber, C., Jessee, J. and Polayes, D.
Full-length cDNA libraries and normalization
Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S65 ATAAAAAATAACTATATTGTTTCAGATAGCAATGGATATTGGAAATTGGAAAGGAGCAAAC 624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Homo sapiens"
//mol_type="mRNA"
//db_xref="texon:p606"
//db_xref="texon:p606"
/clone="CSOIO02YE12"
/tissue type="FLACENTA COT 25-NORMALIZED"
/clone lib="Homo sapiens FLACENTA COT 25-NORMALIZED"
/note="lst strand cDNA was primed with a NotI-oligo(dT)
primer. Five prime end enriched, double-strand cDNA was
digested with Not I and cloned into the Not I and Ecox V
sites of the pCMVSPORT 6 vector. Library was normalized.
                                                                                                                                                                                247 GATGATTATTATGATGAAGGAAATTGTTGATATTATGATAAAAATGGTAATATA
                                                                                                                                                                                                                                                    493 CAIGCAGCAAACTTIACGAAICTITCTTATCCAATGGGTTTCCAITCTAAATACGAAAAT
                                                                                                                                                                                                                                                                                                                       187 GTİĞATATAAATGAİCCAAAİGİİGATİATATTCAAĞGİGATGAİAGİAİTGATĞATAAİ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5.6%; Score 47.8; DB 13; Length 1201; llarity 28.6%; Pred. No. 0.31; Conservative 110; Mismatches 214; Indels 3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BX355654.1 GI:30371982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens (human)
                                                                                                                                                                                                                                                                                                                                                                                                   553 TTTGTTGA 560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GATAATGA 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   131;
                                             307
                                                                                                                433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Si
Matches 131;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 9
BX355654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                         셤
                                                                                                         ઠે
                                                                                                                                                                                유
                                                                                                                                                                                                                                                ò
                                                                                                                                                                                                                                                                                                                    요
                                                                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
```

USA

1,

Gaps

1,

۵.

g ઠે g ઠે g

δ

g È

ò

```
Genoscope.

Direct Submission
Submitted (12-APR-2000) Genoscope - Centre National de Sequencage :
Submitted (12-APR-2000) Genoscope - Centre National de Sequencage :
BP 191 91006 EVRY cedex - FRANCE (E-mail : seqref@genoscope.cns.fr
- Web : www.genoscope.cns.fr)
This sequence is a single read and was generated as part of a large scale clone-end sequencing project of the Tetraodon nigroviridis genome. For more information, please take a look at http://www.genoscope.cns.fr/Tetraodon.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GSS 01-SEP-2000
                                                                                                                                                                                                                                                                                   CNS02ON7
Tetraodon nigroviridis genome survey sequence PUC-Ori end of clone 153P04 of library G from Tetraodon nigroviridis, genomic survey
                                                                                                                                                                                                            963
                                                                                                   : :: :| | | : | | | : | DNKAMKATVTATBITHATATWAMTKTYTYTYTTBITTATWATAT 903
                                                                                                                                                              TCAAGCATACCAAAATCAAGATATGCAGCAAGCATTCTTCTACTTAGGATTATCGCTTCA 464
                                                                                                                                                                                                                                                           Actinopterygii, Neopterygii, Teleostei; Buteleostei; Neoteleostei, Acanthomoxpha; Acanthopterygii; Percomorpha; Tetraodontiformes; Tetraodontoidea; Tetraodontidae; Tetraodon.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Buteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Roest Crollius, H., Jaillon, O., Dasilva, C., Bouneau, L., Fisher, C., Bernot, A., Fizames, C., Wincker, P., Brottier, P., Quetier, F., Saurin, W. and Weissenbach, J.
ATATATTCCTTTTGCGAAACATGCAAAAGAAACAGGCGCAAAATATTTTAACCTTGCTGG
                                                                                                                                                                                                          Estimate of human gene number provided by genome-wide analysis using Tetraodon nigroviridis DNA sequence Nat. Genet. 25 (2), 235-238 (2000)
                                                                                                                                                                                                                                                                                                                                                     AATGGGTTTCCATTCTAAATACGAAAATTTTGTTGATACAATAAAAATAACTATATTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Roest Crollius, H., Jaillon, O., Dasilva, C., Ozouf-Costaz, C., Fizames, C., Fischer, C., Bouneau, L., Billault, A., Quetier, F., Saurin, W., Bernot, A. and Weissenbach, J. Characterization and repeat analysis of the compact genome of freshwater pufferfish Tetraodon nigroviridis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Tetraodon nigroviridis"
Mol type="genomic DNA"
/db xref="taxon:99883"
/clone="153P04"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AL206908.1 GI:7865727
GSS; genome survey sequence.
Tetraodon nigroviridis
Tetraodon nigroviridis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1084 WIWWWIWAIWWIAWAIA 1101
                                                                                                                                                                                                                                                                                                                                                                                                                                               TTCAGATAGCAATGGATA 602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (bases 1 to 1190)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CNS020N7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AL206908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20296633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10835645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0899143
                                                                                                                                                                                                                                                                                                                                                     525
                                                                                                                                                                                                                                                                                                                                                                                                                                               585
                                                                      345
                                                                                                                     844
                                                                                                                                                              405
                                                                                                                                                                                                                                                           465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CNS02ON7/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                          엄
                                                            ઠે
                                                                                                           셤
                                                                                                                                                  ઠે
                                                                                                                                                                                                       셤
                                                                                                                                                                                                                                                           ઠ
                                                                                                                                                                                                                                                                                               셤
                                                                                                                                                                                                                                                                                                                                                  ઠે
                                                                                                                                                                                                                                                                                                                                                                                              셤
                                                                                                                                                                                                                                                                                                                                                                                                                                             ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Drosophila melanogaster genome survey sequence SP6 end of BAC BACN37P08 of DrosBAC library from Drosophila melanogaster (fruit AL108704 AL108704 AL108704. I GI:5629008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (23-701-1999) Genoscope - Centre National de Sequencage : BP 191 91006 EVRY cedex - FRANCE (E-mail : segref@genoscope.cns.fr - Web : www.genoscope.cns.fr)

- Web : www.genoscope.cns.fr)

- Determination of this BAC-one gequence was carried out as part of a collaboration with the European Drosophila Genome Project (EDGP) - http://www.edgp.ebi.ac.uk -. This Drosophila melanogaster BAC library (Dros BAC) was made by Alain Billaud at CEPH (Centre d'Etude du Polymorphisme Humain) with funding provided by a MRC project grant. The DNA was prepared from embryos by Alain Bucheton and Genevieve Payan. It has been constructed in the vector
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                 616
                                                                                            496
                                                                                                                                      86 AAGAAGTTATTAAATATGCAAAATTCATTAGTGGAACGGTTGCACAACAACTCCTTATC 145
                                                                                                                                                                                                                                  CAAAAATGCCTTCATCTTTCCTTATCCATATCATATTCCTGTTAATGTACCAACTGGTG 205
                                                                                                                                                                                                                                                                                                                          Trgartratragaaargcrccarccaaragagararracrcccracacrccarrcagarg 265
                                                                                                                                                                                                                                                                                                                                                                        617 GAGCAAACCCAGAAGATTGGATTGAAGGAGCAGCGGTAGCAGCTAAACAAGATTATCCTG 676
                                                                                                                                                                                                                                                                                                                                                                                                                  266 AAAGTAAAGAAGAACAACCAAAGAAGAACCTGAGTTTGAAGTTGATAATGATAATGATG 325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                285 TCCTTATTATGATAATAGTACATATGCTTCTCACTTTTATGATCCGGATACTGGAACAAC 344
  AGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAAAATCAAGATATGCAGCAAGC 437
                                           26 AAGTGCAAAAGATTGTTGACATGAATGAAAGGGTTAAACAAAATAACGTTTATACCATTG
                                                                                                                                                                                                                                                                              TTGATACAATAAAAATAACTATATTGTTTCAGATAGCAATGGATATTGGAAATTGGAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATTCTTCTACTTAGGATTATCGCTTCATTA-TTTAGGAGATGTGAATCAGCCAATGCATG
                                                                                                                                                                                    CAGCAAACTTTACGAATCTTTCTTATCCAATGGGTTTCCATTCTAAATACGAAAATTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Drosophila melanogaster
Eukaryota, Metazoa, Arthropoda, Hexapoda, Insecta, Pterygota,
Neoptera, Endopterygota, Diptera, Brachycera, Muscomorpha,
Ephydroidaa, Drosophilidae, Drosophila.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 1101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5.5%; Score 47; DB 29; Length 11
Larity 29.6%; Pred. No. 0.48;
Conservative 81; Mismatches 185; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  organism="Drosophila melanogaster"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Drosophila melanogaster (fruit fly)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /mol_type="genomic_DNA"
/db_xref="taxon:7227"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone lib="DrosBAC"
/plasmId="pBeloBAC11"
/note="end : SP6"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           clone="BACN37P08"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   677 GCGTTGTGAACGATA 691
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              326 rrcircrrargaaa 340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1. .1101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     pBeloBAC11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Sim
Matches 112;
                                                                                                                                                                                                                                                                              557
                                                                                                                                                                                                                                                                                                                            206
378
                                                                                            438
                                                                                                                                                                                    497
                                                                                                                                                                                                                                  146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CNS01720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORIGIN
```

셤 ઠે

ઠે

```
Homo sapiens (human)
                                                                                                                                               1. .686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EST
                                                                                                                                                                                                                                                                                                                                                                                                                                          159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BX361152/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
TITLE
JOURNAL
COMMENT
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                               FEATURES
                                                              COMMENT
                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ò
                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                       음
                                                                                                                                                                                                                                                                                                                                                                                                                                         ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CN80341Z
Tetraodon nigroviridis genome survey sequence PUC-Ori end of clone 211K19 of library G from Tetraodon nigroviridis, genomic survey
                                                                                                               ô
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AL226880
AL226880.1 GI:7885817
GSS; genome survey sequence.
Tetracdon nigroviridis
Tetracdon nigroviridis
Eukaryota, Metaca, Chordata; Craniata; Vertebrata; Buteleostomi;
Actinopersygii, Neoptersygii; Teleostei; Buteleostei;
Acanthomorpha; Acanthopterygii; Percomorpha; Tetracdontiformes;
Tetradontoidea; Tetracdontidae; Tetracodon.
                                                                                                                                                                                                                                                                                                                                                                                                                                          619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               255 AAATGGTATTTATTCTGCTGATTACGAGAATCCTTATTATGATAATAGTACATATGCTTC 314
                                                                                                                                                                              918 ATATAWIWIATATINIAWWNIATATAWATATIWITATAWITITAATAANATATITA 859
                                                                                                                                                                                                              TCACTITITATGATCCGGATACTGGAACAACATATATTCCTTTTGCGAAACATGCAAAAGA 374
                                                                                                                                                                                                                                      554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGTTGATACAATAAAAATAACTATATTGTTTCAGATAGCAATGGATATTGGAATTGGAA 614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Rocet Crollius, H., Jaillon, O., Dasilva, C., Ozouf-Costaz, C., Fizames, C., Fischer, C., Bouneau, L., Billault, A., Quetier, F., Saurin, W., Bernot, A. and Weissenbach, J. Characterization and repeat analysis of the compact genome of the freshwater pufferfish Tetraodon nigroviridis
                                                                                                                                                                                                                                                                             AACAGGCGCAAAATATTTTAACCTTGCTGGTCAAGCATACCAAAATCAAGATATGCAGCA 434
                                                                                                                                                                                                                                                                                                                                            435 AGCATTCTTCTACTTAGGATTATCGCTTCATTATTTAGGAGATGTGAATCAGCCAATGCA 494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Roest Crollius, H., Jaillon, O., Dasilva, C., Bouneau, L., Fisher, C., Bernot, A., Fizames, C., Wincker, P., Brottier, P., Quetier, F., Saurin, W. and Weissenbach, J.
Estinate of human gene number provided by genome-wide analysis using Tetraodon nigroviridis DNA sequence
Nat. Genet. 25 (2), 235-238 (2000)
                                                                                                                                                                                                                                                                                                                                                                          738 TATTTATATATATATATATATATATATTATATATATAWWTATWTTATATATATTTT
                                                                                                                                                                                                                                                                                                                                                                                                            TGCAGCAAACTTTACGAATCTTTCTTATCCAATGGGTTTCCATTCTAAATACGAAAATTT
                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
/clone_lib="G"
/note="Genoscope sequence_ID : COAG153DH02SP1~end
PUC-Ori"
                                                                                                               ö
                                                                                 Length 1190;
                                                                               Query Match 5.5%; Score 46.8; DB 29; Length Best Local Similarity 36.6%; Pred. No. 0.54; Matches 132; Conservative 37; Mismatches 192; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3 (bases 1 to 686)
Genoscope.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10835645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20359837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A 615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A 558
                                                                                                                                                                                                                  315
                                                                                                                                                                                                                                                                                375
                                                                                                                                                                                                                                                                                                                                                                                                              495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             615
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MEDLINE
PUBMED
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 13
CNS03412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                           셤
                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                          셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           요
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ઠ
                                                                                                                                                                                셤
                                                                                                                                                                                                                  ò
                                                                                                                                                                                                                                         요
                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                            ઠે
                                                                                                                                                                                                                                                                                                                                                                                                            ઠ્ઠ
```

```
Contact: Genoscope
Genoscope - Centra National de Sequencage
Genoscope - Centra France
BP 191 91006 EVRY cedex - France
BP 191 91006 EVRY cedex - France
Email: seqrefégenoscope.cns.fr, Web: www.genoscope.cns.fr
Inbitary was constructed by Idfe Technologies, a division of
Invitrogen. This sequence belongs to sequence cluster 7593.f For
more information about this cluster, see
http://www.genoscope.cns.fr/
cgl-bin/cluster.cgi?seq-cc001081AB10QP1&cluster=7593.f. Contact:
Feng Liang Email: fliang@lifetech.com URL:
Peng Liang Email: fliang@lifetech.com URL:
Peng Liang Avenue Genoscope sequence ID: CS0DI081AB10QP1.
                                                                                          Web: www.genoscope.cns.fr)
This sequence is a single read and was generated as part of a large scale clone-end sequencing project of the Tetraodon nigroviridis genome. For more information, please take a look at http://www.genoscope.cns.fr/Tetraodon.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1201 bp mRNA linear EST 05-MAY-2003 BX361152 Homo sapiens PLACENTA COT 25-NORMALIZED Homo sapiens CDNA CIONE CSODIO81YC19 5-PRIME, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ö
Direct Submission
Submitted (12-APR-2000) Genoscope - Centre National de Sequencage :
BP 191 91006 EVRY cedex - FRANCE (E-mail : segref@genoscope.cns.fr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99 ACCGATITITAAGAIGGICAGCIGAGGATAAGCATAAIGAGGGGATTAACTCICATITIGIG 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  200 ACAGGTGAGAATTTGTTTAAACTCAGATAATAATAATAATAATAATAATKATAATAATAG 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   320 TAATAATAATWATWATKKTGGTGGTGDTDKTKKTKKTDKTDKTWATTTTTDTDDTDDTKD 379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    279 CCAGAATCCTTATTATGATAATAGTACATATGCTTCTCACTTTTATGATCCGGATACTGG 338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1. (bases 1 to 1201)

Li, W.B., Gruber, C., Jessee, J. and Polayes, D.

Full.length cDNA libraries and normalization

Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GATTGTAAATCGTGCAATTGACATCATGTCTCGTAATACAACGATTGTGAATCCGAATGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          260 TAATAATAATAATAATAAYAGCAATAATAATAATAGTAATAGTAATAATAATAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                /organism="Tetraodon nigroviridis"
/mol type="genomic DNA"
/mol type="genomic DNA"
/db Xref="taxon:99883"
/clone="211K19"
/clone lib="G"
/note="Genoscope sequence ID : COAG211AF10SF1~end
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 686;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match 5.5%; Score 46.4; DB 29; Best Local Similarity 41.0%; Pred. No. 0.64; Matches 105; Conservative 29; Mismatches 122;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BX361152.1 GI:30380524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  339 AACAACATATATTCCT 354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    440 Grgrácaragrercar 455
```

tvpe="mRNA"

```
525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 465
                                                                                                                                                                                                          Query Match
                                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                유
                                                                                                                                                                                                                                                                                                                                                                                    셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ,
B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    a,
                                                                                                                                                                                                                                                                                                                                                   ò
                                                                                                                                                                                                                                                                                                                                                                                                                         ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BX462896
BX462896 Homo sapiens FETAL LIVER Homo sapiens cDNA clone CS0DM001XL14 3-PRIME, mRNA sequence.
                                                                                                                                                                                                                                               ö
                                             /clone="CSODIO81YC19"
/tissue type="PLACENTA COT 25-NORMALIZED"
/cione lib="Homo sapiens PLACENTA COT 25-NORMALIZED"
/note="1st strand cDNA was primed with a NotI-oligo(dT)
primer. Five prime end enriched, double-strand cDNA was
digested with Not I and cloned into the Not I and EcoR V
sites of the pCMVSPORT 6 vector. Library was normalized."
                                                                                                                                                                                                                                                                                 285
                                                                                                                                                                                                                                                                                                                  895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    655
                                                                                                                                                                                                                                                                                                                                                                                        835
                                                                                                                                                                                                                                                                                                                                                                                                                                                           775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               715
                                                                                                                                                                                                                                                                                                                                                 286 CCTTATTATGATAATAGTACATATGCTTCTCACTTTTATGATCCGGATACTGGAACAACA 345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                         346 IATATICCITITIGCGAAACAIGCAAAAGAAACAGGCGCAAAAIAITITAACCITGCIGGI
                                                                                                                                                                                                                                                                                                                                                                                                                                              CAAGCATACCAAAATCAAGATATGCAGCAAGCATTCTTCTTCTTAGGATTATCGCTTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             774 АМЖИМТИММААМААТАААММААТАААМКААААТТІТІТІТИТАТТІТІТІТІТІТІТ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Email: segref@genoscope.cns.fr, Web : www.genoscope.cns.fr Library was constructed by Life Technologies, a division of Invitrogen. This sequence belongs to sequence cluster 4458.r F more information about this cluster, see http://www.genoscope.cns.fr/cgi.bin/cluster.cgi?seq=CsODMO01DFO7NPl&cluster=4458.r. Contac Feng Liang Email: fliang@lifetech.com URL: http://fulllength.invitrogen.com/ InvitroGen Corporation 1600 Faraday Avenue Genoscope sequence ID : CSODMO01DF07NPl.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Eutelec
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 1201)
                                                                                                                                                                                                                                               ö
                                                                                                                                                                                                        5.4%; Score 46; DB 13; Length 1201; 36.7%; Pred. No. 0.87; ive 37; Mismatches 182; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      554 TTTTTAATGTAAGTAAGTTTAATTAAATTAAGATCTTGAAAA 609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       526 ATGGGTTTCCATTCTAAATACGAAAATTTTGTTGATACAATAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 (bases 1 to 1201)
Li,W.B., Gruber,C., Jessee,J. and Polayes,D.
Full-length cDNA libraries and normalization
Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Genoscope - Centre National de Sequencage
BP 191 91006 EVRY cedex - France
 sapiens"
                /mol_type="mRNA"
/db xref="taxon:9606"
                                                                                                                                                                                                                                                                                                    ••
organism="Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BX462896.1 GI:31019600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sapiens (human)
                                                                                                                                                                                                                           Best Local Similarity 36./*
Matches 127; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Contact: Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ношо
                                                                                                                                                                                                                                                                                226
                                                                                                                                                                                                                                                                                                                954
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            406
                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 15
BX462896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                 ò
                                                                                                                                                                                                                                                                                                                                                                                  셤
                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                  g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         셤
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ò
```

/organism="Homo sapiens"

```
ò
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      999 ATTAATAWTAAAWATWNANTAATWAANTATTATNTATTATWTANANATATWTTATWTATA 1058
/db_xref="taxon:9606"
/clone="CSODWOOIYL14"
/tissue_type="FERAL LIVER"
/dev_stage="fetal"
/done_lib="Homom sapiens FETAL LIVER"
/note="Organ: liver; Vector: pCWVSPORT 6; 1st strand cDNA was primed with a NotI-oligo(dT) primer. Five prime end enriched, double-efrand cDNA was digested with Not I and cloned into the Not I and ECORV sites of the pCWVSPORT 6 vector. Library was not normalized."
                                                                                                                                                                                                                                                                                                                                                                                                                                          284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            285 TCCTTATTATGATAATAGTACATATGCTTCTCACTTTTATGATCCGGATACTGGAACAAC 344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    759 ATAAATTTAAATAAATAATATATATATTINTAAATAWAANTAAATAWAATANTATAWAA 818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            345 AIATATTCCTTTTGCGAAACATGCAAAAGAAACAGCGCGAAAATATTTTAACCTTGCTGG 404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AATGGGTTTCCATTCTAAATACGAAAATTTTGTTGATACAATAAAAAATAACTATATTGT 584
                                                                                                                                                                                                                                                                                                                                                                                                                                       TCAAGCATACCAAAATCAAGATATGCAGCAAGCATTCTTCTACTTAGGATTATCGCTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                    ö
                                                                                                                                                                                                                                                                                                                               DB 13; Length 1201;
                                                                                                                                                                                                                                                                                                                            5.4%; Score 46; DB 13; Length 12
39.1%; Pred. No. 0.87;
iive 17; Mismatches 214; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Search completed: August 2, 2004, 04:10:48
Job time : 2820 secs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1059 WATATANANTATATATAT 1077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTCAGATAGCAATGGATAT
                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity 39.1%
Matches 148; Conservative
```

lotosu) Anola agod sirl